Algebra 2 Final Exam Review 2017

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Suppose *Q* and *R* are independent events. Find *P*(*Q* and *R*).

____ 1. $P(Q) = \frac{1}{2}$, $P(R) = \frac{1}{7}$

a. $\frac{9}{14}$ b. $\frac{1}{14}$ c. $\frac{13}{14}$ d. $\frac{4}{13}$

____ 2. Suppose that y varies directly with x and inversely with z $y = 12$ when $x = 16$, and $z = 4$. Write the equation that models the relationship. Then find y when $x = 4$ and $z = 6$.

a. $y = \frac{3z}{x}; \frac{9}{2}$ c. $y = \frac{3x}{z}; 2$

b. $y = \frac{4z}{x}; 6$ d. $y = \frac{4x}{z}; \frac{8}{3}$

Simplify the rational expression. State any restrictions on the variable.

____ 3. $\frac{x^2 - 2x - 3}{x^2 - 10x + 21}$

a. $\frac{x + 1}{x - 7}; x \neq 3, x \neq -7$ c. $\frac{-(x + 1)}{x - 7}; x \neq 7$

b. $\frac{-(x + 1)}{x - 7}; x \neq 3, x \neq 7$ d. $\frac{x + 1}{x - 7}; x \neq 3, x \neq 7$

Add or subtract. Simplify if possible.

____ 4. $\dfrac{g^2 - 12g + 35}{g^2 - 9g + 14} - \dfrac{8}{g - 2}$

a. $\dfrac{g^2 - 12g + 27}{g^2 - 9g + 14}$

b. $\dfrac{g - 13}{g - 2}$

c. $g - 13$

d. $\dfrac{g - 5}{g - 2}$

____ 5. Write an equation for the translation of $y = \dfrac{3}{x}$ that has the asymptotes $x = -2$ and $y = -7$.

a. $y = \dfrac{3}{x - 7} - 2$

b. $y = \dfrac{3}{x - 2} - 7$

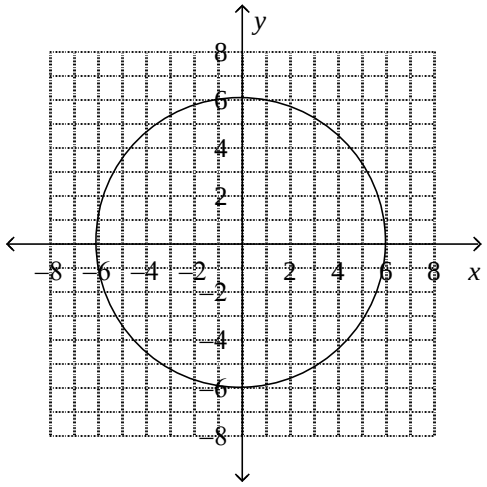
c. $y = \dfrac{3}{x + 2} - 7$

d. $y = \dfrac{3}{x + 7} - 2$

Graph the equation. Describe the graph and its lines of symmetry.

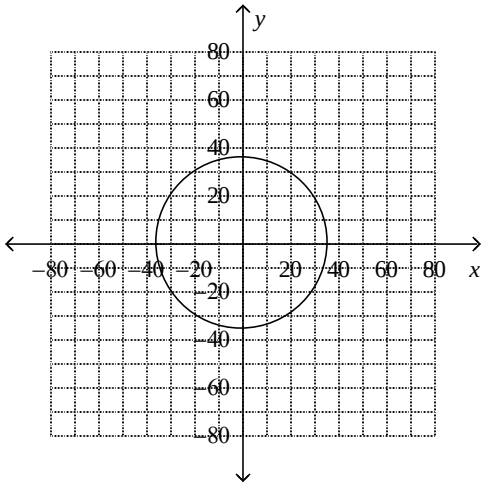
____ 6. $x^2 + y^2 = 36$

a.



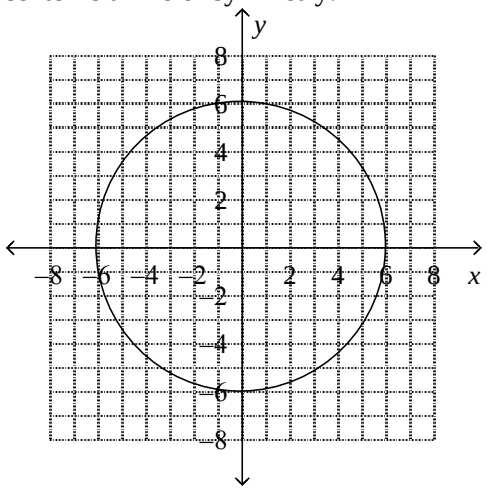
The graph is a circle of radius 6. Its center is at the origin. Every line through the center is a line of symmetry.

c.



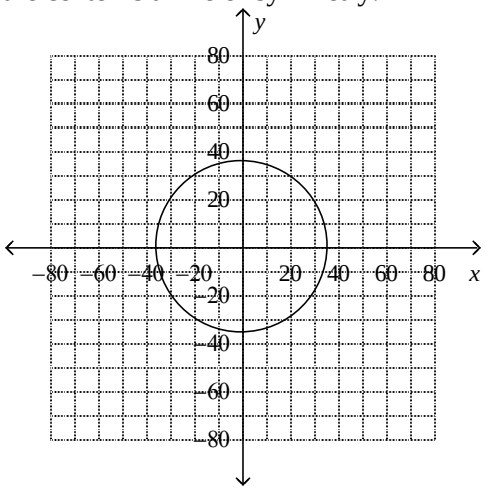
The graph is a circle of radius 36. Its center is at the origin. Every line through the center is a line of symmetry.

b.



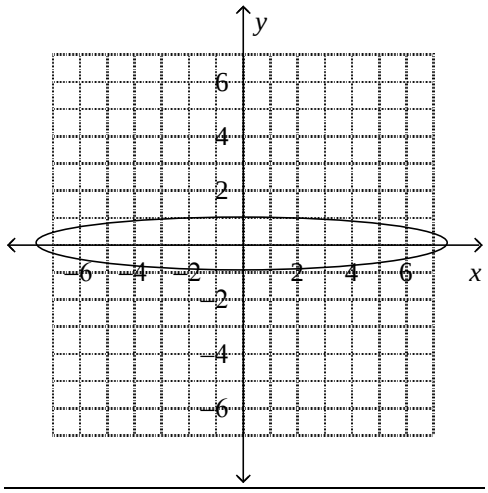
The graph is a circle of radius 6. Its center is at the origin. The *y*-axis and the *x*-axis are lines of symmetry.

d.



The graph is a circle of radius 36. Its center is at the origin. The *y*-axis and the *x*-axis are lines of symmetry.

____ 7. This ellipse is being used for a design on a poster. Name the *x*-intercepts and *y*-intercepts of the graph.



a. $(0, \pm 1), (\pm 7.5, 0)$
b. $(\pm 7.5, 0), (0, \pm 1)$
c. $(\pm 7.5, 1), (0, 0)$
d. $(\pm 1, 0), (0, \pm 7.5)$

____ 8. Write an equation of a parabola with a vertex at the origin and a focus at (–2, 0).

a. $x = -\frac{1}{8} y^2$
b. $y = -\frac{1}{4} x^2$
c. $y = \frac{1}{8} x^2$
d. $x = \frac{1}{8} y^2$

____ 9. Identify the focus and the directrix of the graph of $y = -\frac{1}{12} x^2$.

a. focus (0, –3), directrix at $y = –3$
b. focus (–3, 0), directrix at $y = –3$
c. focus (0, –3), directrix at $y = 3$
d. focus (–3, 0), directrix at $y = 3$

____ 10. A satellite is launched in a circular orbit around Earth at an altitude of 120 miles above the surface. The diameter of Earth is 7920 miles. Write an equation for the orbit of the satellite if the center of the orbit is the center of the Earth labeled (0, 0).

a. $x^2 + y^2 = 14,400$

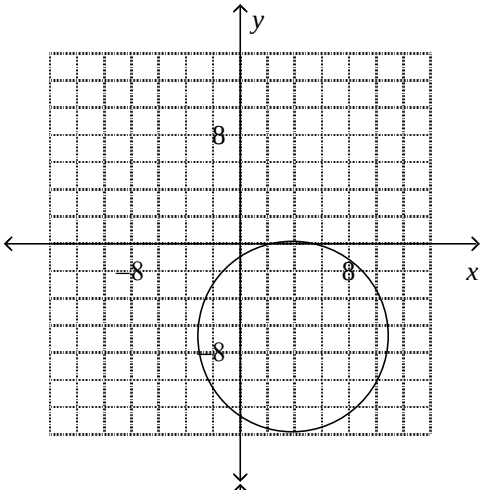
b. $x^2 - y^2 = 8040$

c. $x^2 + y^2 = 8040$

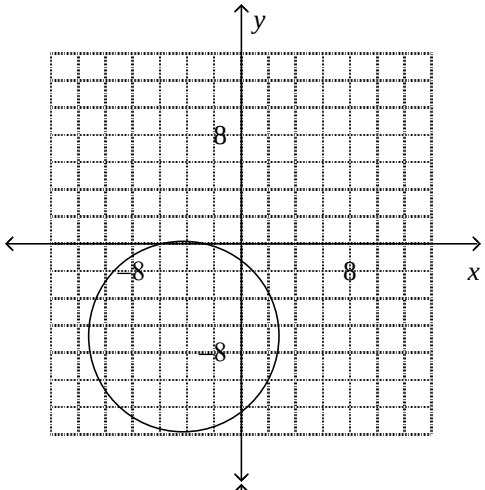
d. $x^2 + y^2 = 64,641,600$

____ 11. Graph $(x + 4)^2 + (y - 7)^2 = 49$.

a.



c.



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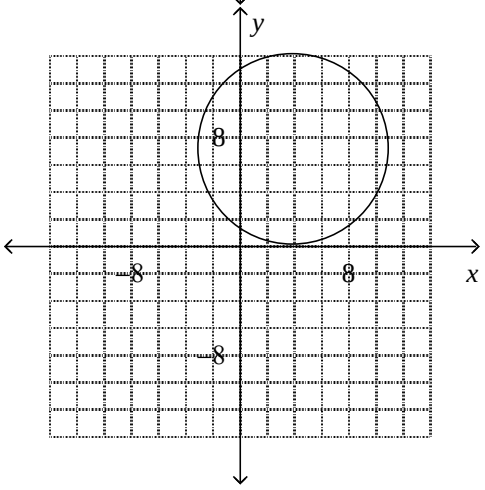
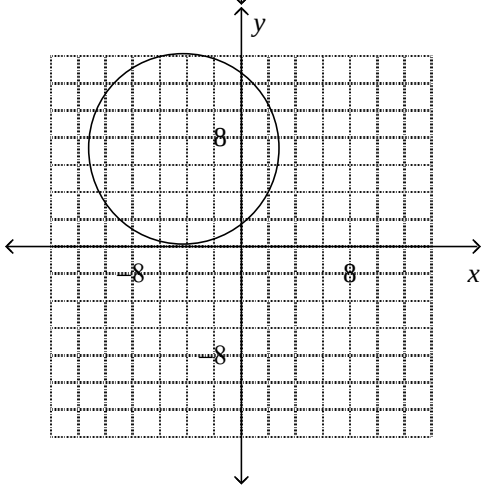


d.



____ 12. An elliptical track has a major axis that is 80 yards long and a minor axis that is 72 yards long. Find an equation for the track if its center is (0, 0) and the major axis is the *x*-axis.

a. $\frac{x^2}{72} + \frac{y^2}{80} = 1$

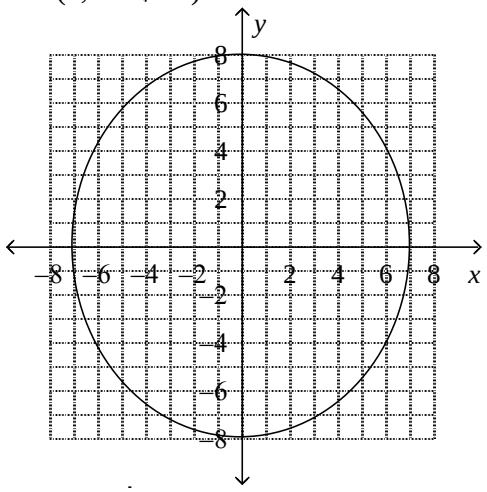
b. $\frac{x^2}{1296} + \frac{y^2}{1600} = 1$

c. $\frac{x^2}{80} + \frac{y^2}{72} = 1$

d. $\frac{x^2}{1600} + \frac{y^2}{1296} = 1$

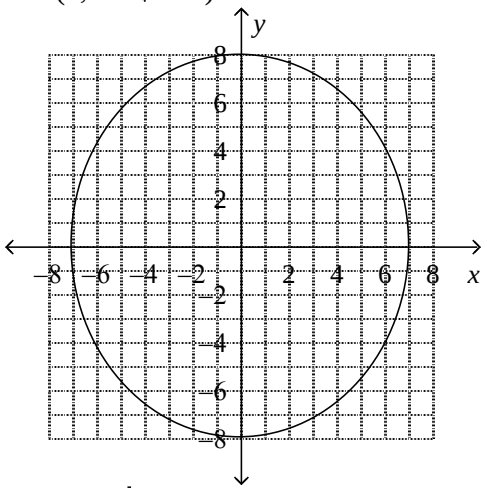
____ 13. Find the foci of the ellipse with the equation $\frac{x^2}{49} + \frac{y^2}{64} = 1$. Graph the ellipse.

a. foci $(0, \pm \sqrt{15})$

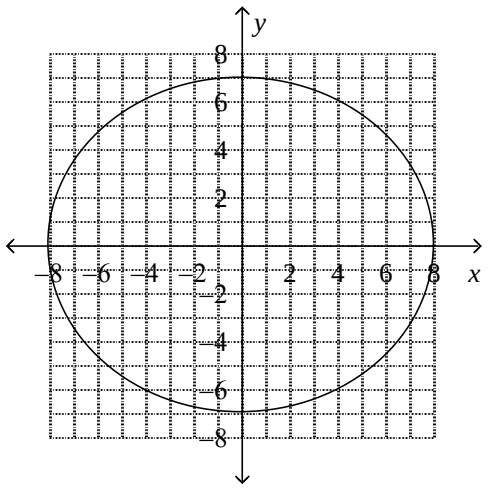


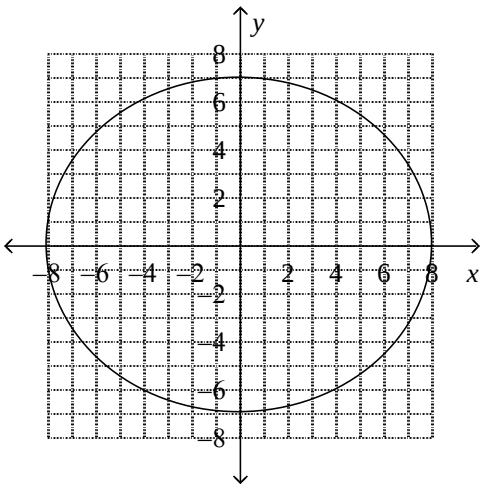
b. foci $(0, \pm \sqrt{15})$

c. foci $(0, \pm \sqrt{113})$



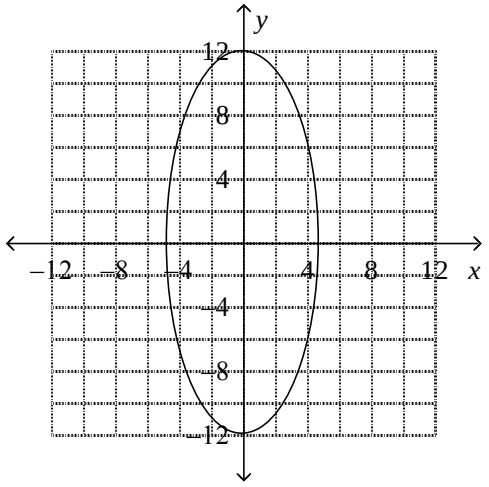
d. foci $(0, \pm \sqrt{113})$





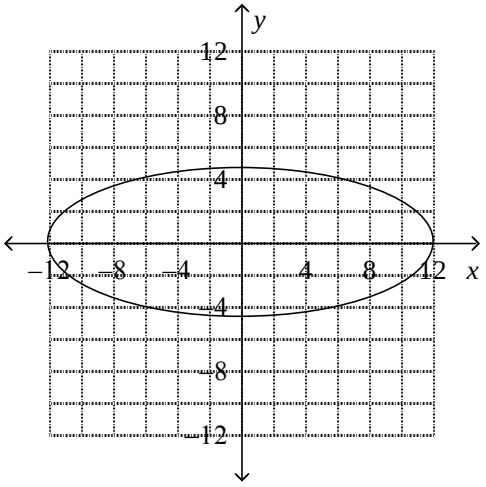
____ 14. Write an equation of the ellipse with foci at $(0, \pm 11)$ and vertices at $(0, \pm 12)$. Graph the ellipse.

a. $\frac{x^2}{265} + \frac{y^2}{144} = 1$

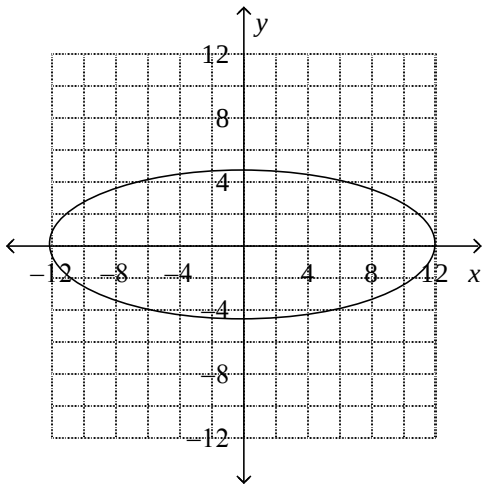


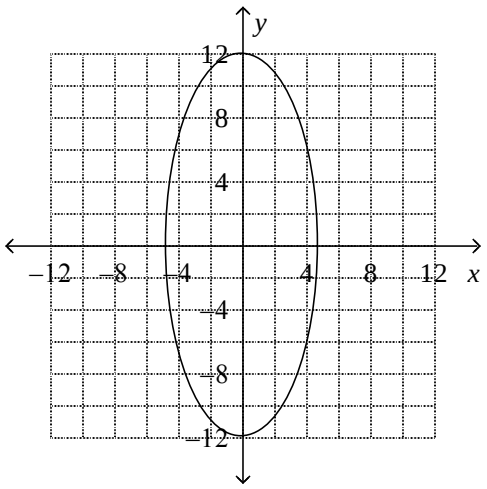
b. $\frac{x^2}{265} + \frac{y^2}{144} = 1$

c. $\frac{x^2}{144} + \frac{y^2}{23} = 1$



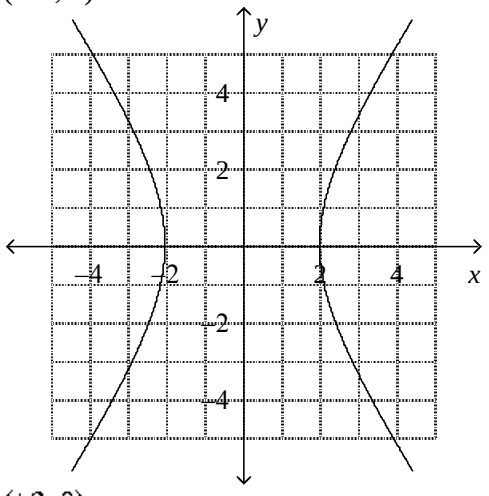
d. $\frac{x^2}{23} + \frac{y^2}{144} = 1$





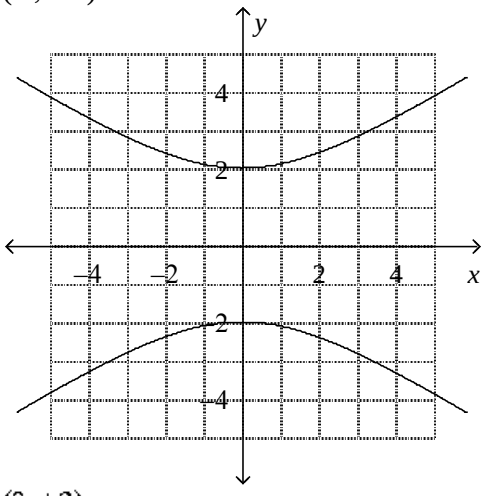
____ 15. Suppose that the path of a newly discovered comet could be modeled by using one branch of the equation $\frac{x^2}{4} - \frac{y^2}{9} = 1$, where distances are measured in astronomical units. Name the vertices of the hyperbola and then graph the hyperbola.

a. $(\pm 2, 0)$

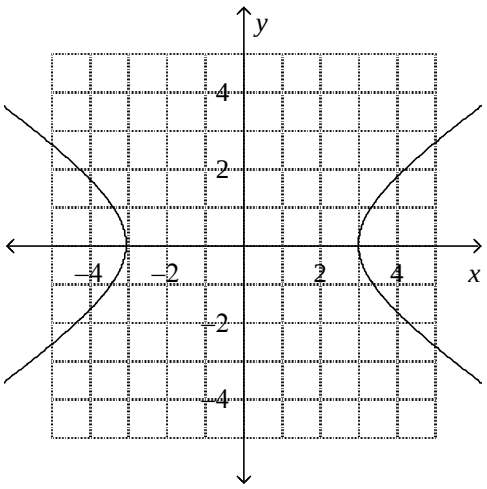


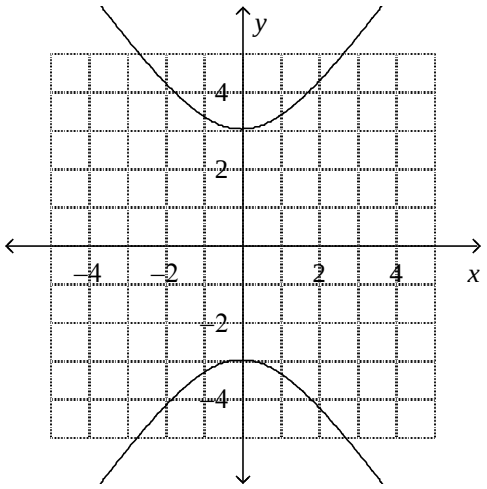
b. $(\pm 3, 0)$

c. $(0, \pm 2)$



d. $(0, \pm 3)$





____ 16. Find an equation that models the path of a satellite if its path is a hyperbola, a = 55,000 km, and c = 81,000 km. Assume that the center of the hyperbola is the origin and the transverse axis is horizontal.

a. $\dfrac{y^2}{(9,586,000,000)} - \dfrac{x^2}{(3,025,000,000)} = 1$

b. $\dfrac{x^2}{(3,025,000,000)} + \dfrac{y^2}{(3,536,000,000)} = 1$

c. $\dfrac{y^2}{(3,025,000,000)} - \dfrac{x^2}{(9,586,000,000)} = 1$

d. $\dfrac{x^2}{(3,025,000,000)} - \dfrac{y^2}{(3,536,000,000)} = 1$

____ 17. Write an equation of an ellipse with center (3, –3), vertical major axis of length 12, and minor axis of length 6.

a. $\dfrac{(x+3)^2}{6} - \dfrac{(y-3)^2}{12} = 1$

b. $\dfrac{(x-3)^2}{12} + \dfrac{(y+3)^2}{6} = 1$

c. $\dfrac{(x+3)^2}{36} - \dfrac{(y-3)^2}{9} = 1$

d. $\dfrac{(x-3)^2}{9} + \dfrac{(y+3)^2}{36} = 1$

Describe the pattern in the sequence. Find the next three terms.

____ 18. 13, 15, 17, 19, ...
a. Add 2; 23, 25, 27.
b. Multiply by 2; 38, 76, 152.
c. Add –2; 17, 15, 13.
d. Add 2; 21, 23, 25.

____ 19. The table shows the predicted growth of a particular bacteria after various numbers of hours. Write an explicit formula for the sequence of the number of bacteria.

Hours (n)	1	2	3	4	5
Number of Bacteria	19	38	57	76	95

a. $a_n = 19n + 19$
b. $a_n = n + 19$
c. $a_n = \frac{1}{19} n$
d. $a_n = 19n$

Is the sequence arithmetic? If so, identify the common difference.

____ 20. 14, 21, 42, 77, ...
a. yes, 7
b. yes, –7
c. yes, 14
d. no

Write the explicit formula for the sequence. Then find the fifth term in the sequence.

____ 21. $a_1 = 3, r = -3$

a. $a_n = 3 \cdot (-3)^{n-1}$; 243
b. $a_n = -3 \cdot (3)^{n-1}$; –243
c. $a_n = 3 \cdot (3)^n$; 243
d. $a_n = 3 \cdot (-3)^n$; –729

Find the missing term of the geometric sequence.

____ 22. 45, , 1620, ...

a. 9720
b. 51
c. 6
d. 270

Use the finite sequence. Write the related series. Then evaluate the series.

____ 23. 26, 29, 32, 35, 38, 41, 44

a. 26 + 29 + 32 + 35 + 38 + 41 + 44 = 219
b. 26 + 29 + 32 + 35 + 38 + 41 + 44 = 245
c. 26 – 29 – 32 – 35 – 38 – 41 – 44 = –193
d. 26 + 29 + 32 + 35 + 38 + 41 + 44 = 201

____ 24. The sequence 15, 21, 27, 33, 39, ..., 75 has 11 terms. Evaluate the related series.

a. 420
b. 495
c. 210
d. 480

____ 25. A large asteroid crashed into a moon of a planet, causing several boulders from the moon to be propelled into space toward the planet. Astronomers were able to measure the speed of one of the projectiles. The distance (in feet) that the projectile traveled each second, starting with the first second, was given by the arithmetic sequence 26, 44, 62, 80, ... Find the total distance that the projectile traveled in seven seconds.
a. 534 feet
b. 560 feet
c. 212 feet
d. 426 feet

____ 26. Use summation notation to write the series 49 + 54 + 59 + ... for 14 terms.
a. $\sum_{n=1}^{14} (49 + 5n)$
b. $\sum_{n=1}^{13} (44 + 5n)$
c. $\sum_{n=1}^{14} (44 + 5n)$
d. $\sum_{n=1}^{44} (49 + 5n)$

____ 27. Evaluate the series 1 + 4 + 16 + 64 + 256 + 1024.
a. 1365
b. 1364
c. 341
d. 5461

____ 28. Justine earned $17,000 during the first year of her job at city hall. After each year she received a 4% raise. Find her total earnings during the first five years on the job.

a. $3,541.44 b. $72,189.89 c. $517,077.48 d. $92,077.48

____ 29. In June, Cory begins to save money for a video game and a TV he wants to buy in December. He starts with $20. Each month he plans to save 10% more than the previous month. How much money will he have at the end of December?

a. $154.31 b. $251.59 c. $228.72 d. $189.74

Does the infinite geometric series diverge or converge? Explain.

____ 30. $\frac{1}{5} + \frac{1}{10} + \frac{1}{20} + \frac{1}{40} + \ldots$

a. It diverges; it has a sum.
b. It diverges; it does not have a sum.
c. It converges; it has a sum.
d. It converges; it does not have a sum.

Evaluate the infinite geometric series. Round to the nearest hundredth if necessary.

____ 31. $8 + 4 + 2 + \ldots$

a. 16 b. 2 c. 16 d. 8

____ 32. For two weeks, Mark recorded the color of the traffic light at the intersection of Main Street and North Avenue as his school bus approached the intersection. The results were: red, red, red, red, red, red, green, red, red, yellow.

Make a frequency table for the data.

a.

Color	Number
Red	1
Green	8
Yellow	1
Total	10

b.

Color	Number
Red	8
Green	1
Yellow	1
Total	10

c.

Color	Number
Red	8
Green	1
Yellow	1
Total	7

d.

Color	Number
Red	1
Green	1
Yellow	8
Total	14

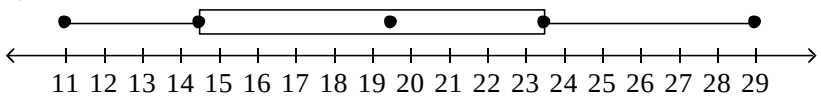
____ 33. The probability that a city bus is ready for service when needed is 84%. The probability that a city bus is ready for service and has a working radio is 67%. Find the probability that a bus chosen at random has a working radio given that it is ready for service. Round to the nearest tenth of a percent.

a. 17.0% b. 79.8% c. 83.8% d. 12.5%

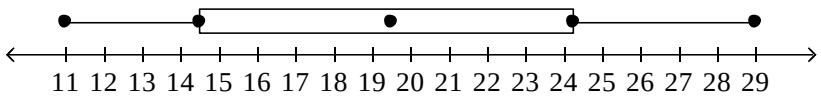
Make a box-and-whisker plot of the data.

____ 34. 24, 18, 29, 21, 16, 23, 13, 11

a.



b.



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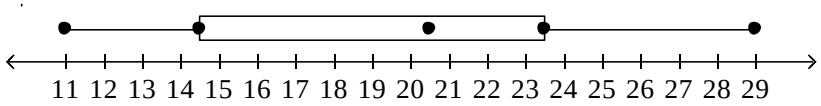
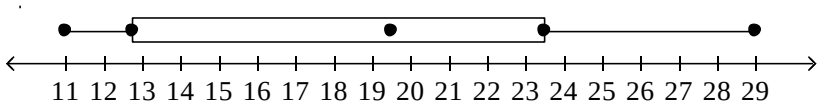


d. 

Find the range and interquartile range of the data. Round to the nearest tenth.

____ 35. 44, 45, 38, 8, 40, 35, 10, 55, 23, 36

a. range = 37; interquartile range = 21
c. range = 37; interquartile range = 14
b. range = 47; interquartile range = 14
d. range = 47; interquartile range = 21

____ 36. Susan keeps track of the number of tickets sold for each play presented at The Community Theater. Within how many standard deviations of the mean do all the values fall?
137, 134, 91, 61, 150, 155, 110, 148, 90, 169, 67, 61

a. 5
b. 4
c. 2
d. 3

____ 37. A set of data has mean 66 and standard deviation 7. Find the *z*-score of the value 32.

a. 0.4
b. 4.9
c. –34
d. –4.9

____ 38. In a sample of 138 teenagers, 38 have never been to a live concert. Find the sample proportion for those who have never been to a live concert.

a. 4%
b. 28%
c. 50%
d. 72%

____ 39. Find the margin of error for the sample proportion, given a sample size of $n = 1200$. Round to the nearest percent.

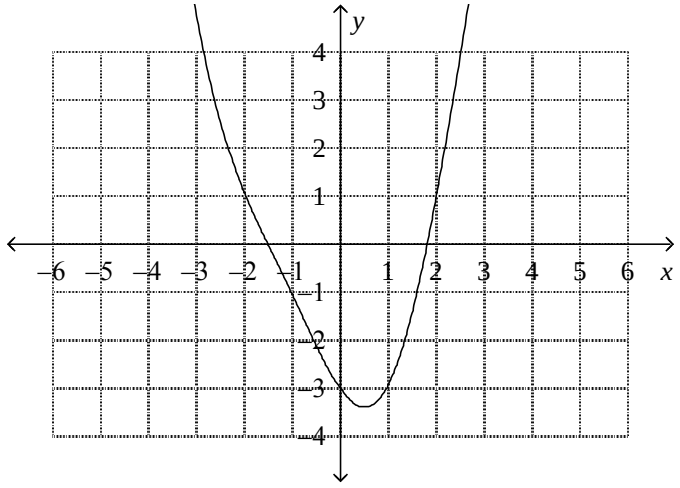
a. $\pm 97\%$ b. $\pm 3\%$ c. $\pm 29\%$ d. $\pm 1\%$

____ 40. Find the probability of $x = 5$ successes in $n = 8$ trials for the probability of success $p = 0.3$ on each trial. Round to the nearest thousandth.

a. 0.008 b. 0.023 c. 0.047 d. 0.004

Determine whether the function shown below *is* or *is not* periodic. If it is, find the period.

____ 41.



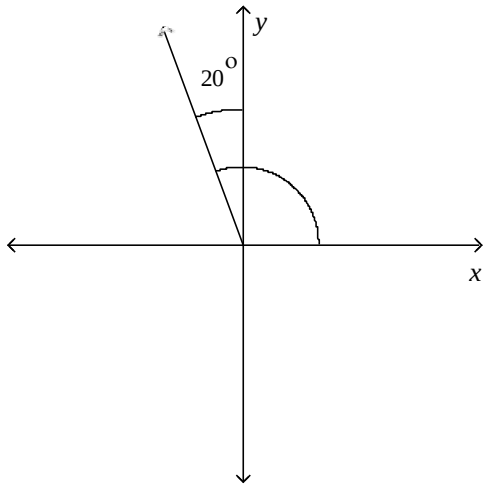
a. periodic; about 3

b. not periodic

c. periodic; about $1\frac{1}{2}$

d. periodic; about 2

____ 42. Find the measure of the angle below.

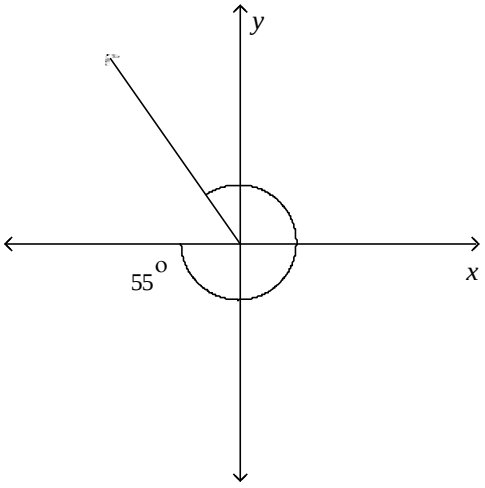


a. 110º b. 250º c. 90º d. 210º

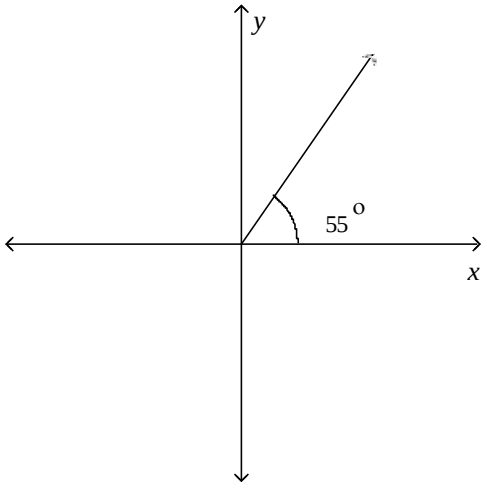
Sketch the angle in standard position.

____ 43. 55º

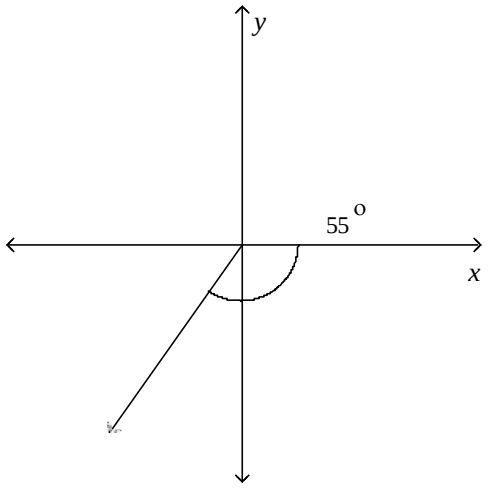
a.



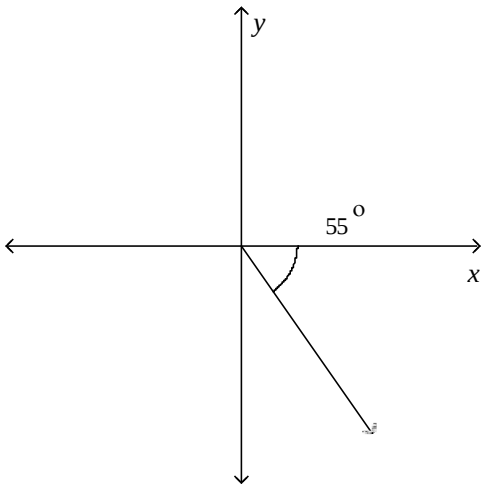
c.



b.



d.



____ 44. Find the measure of an angle between 0º and 360º coterminal with an angle of –110º in standard position.

a. 250º b. 20º c. 110º d. 70º

Write the measure in radians. Express the answer in terms of π.

____ 45. 320º

a. $\frac{16\pi}{9}$ b. $\frac{9\pi}{16}$ c. $\frac{9}{16\pi}$ d. $\frac{16}{9\pi}$

Write the measure in degrees.

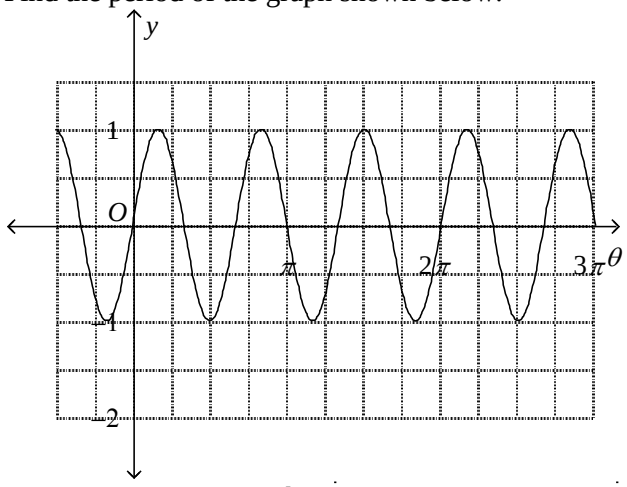
____ 46. $\frac{3\pi}{5}$ radians

a. $108\pi^{o}$ b. $\frac{\pi}{300}{}^{o}$ c. 108^{o} d. 1.88^{o}

____ 47. A Ferris wheel has a radius of 80 feet. Two particular cars are located such that the central angle between them is 165º. To the nearest tenth, what is the measure of the intercepted arc between those two cars on the Ferris wheel?

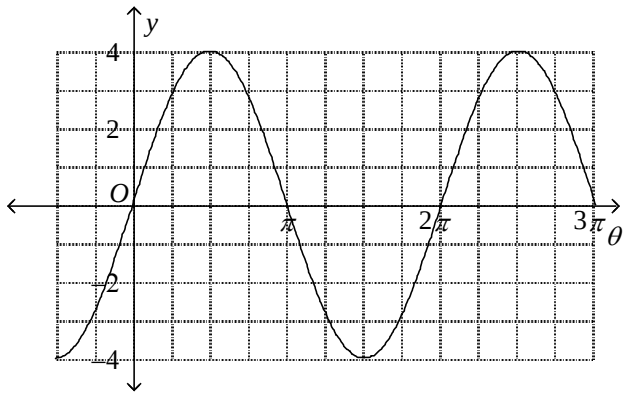
a. 27.8 feet b. 13,200.0 feet c. 502.7 feet d. 230.4 feet

____ 48. Find the period of the graph shown below.



a. 2π b. $\frac{2}{3}\pi$ c. $\frac{1}{2}\pi$ d. 4π

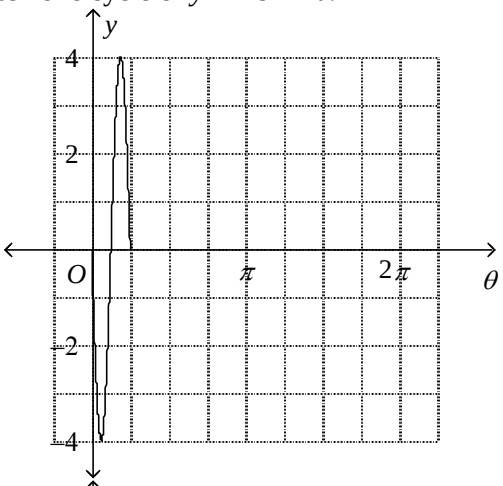
____ 49. Find the amplitude of the sine curve shown below.



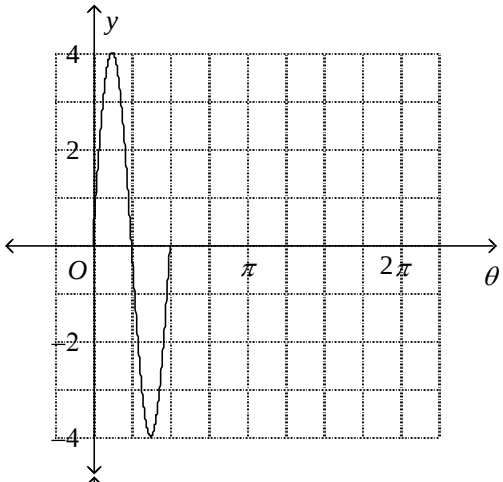
a. 2π b. 8 c. 2 d. 4

____ 50. Sketch one cycle of $y = 4 \sin 4\theta$.

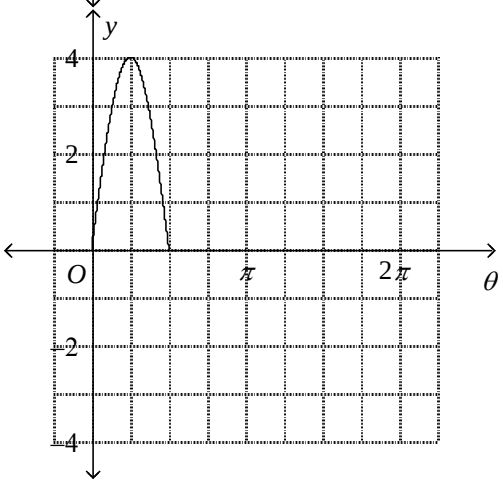
a.



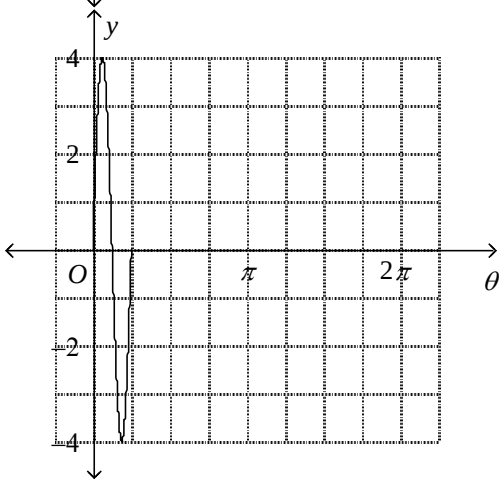
c.



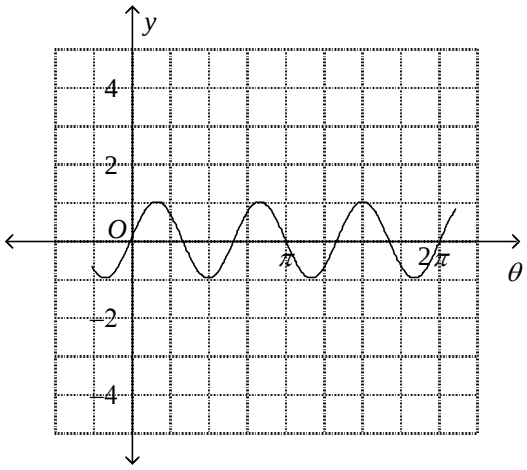
b.



d.



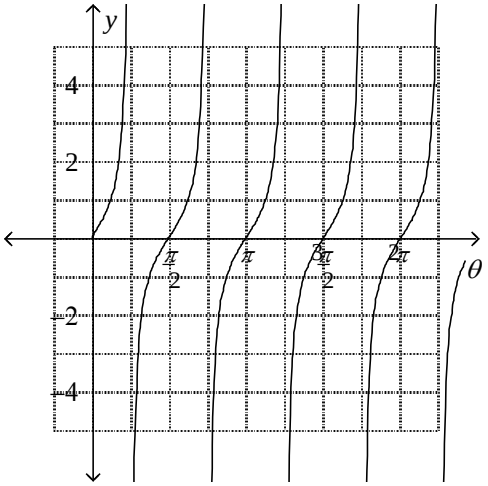
____ 51. Write the equation for the sine function shown below.



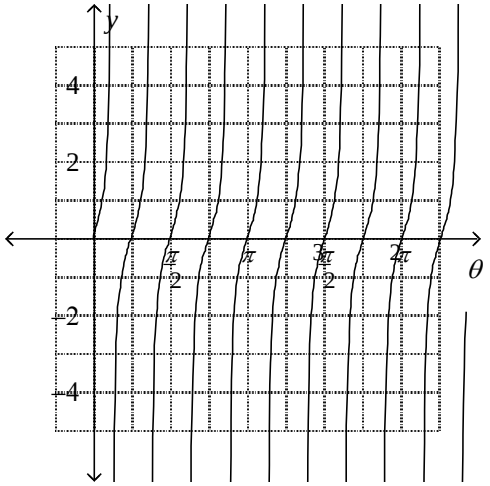
a. $y = \sin\theta$
b. $y = \sin 3\theta$
c. $y = -1 \sin 6\theta$
d. $y = -1 \sin 3\theta$

____ 52. Sketch the graph of the tangent curve $y = \tan 2x$ in the interval from 0 to 2π.

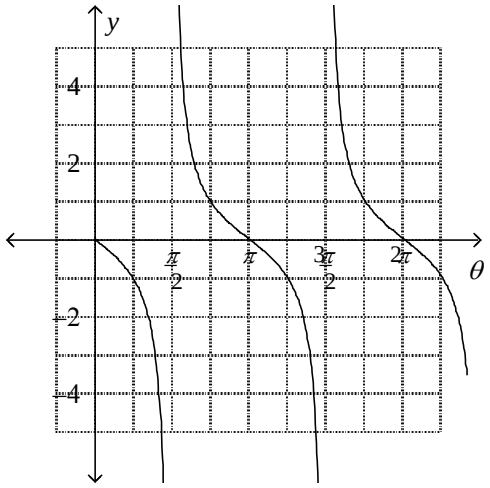
a.



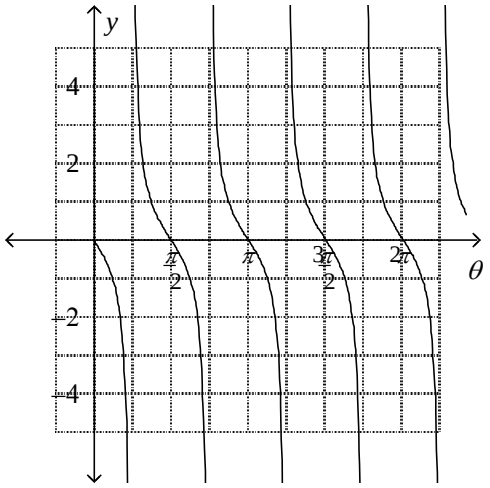
c.



b.



d.



____ 53. Use a graphing calculator to graph the function $y = 120 \tan 2x$ on the interval $0° < x < 180°$ and $-300 < y < 300$.
Evaluate the function at $x = 55°, 110°, \text{and } 165°$. Round to the nearest tenth.

a. –171.4, 329.7, 32.2
b. –329.7, 100.7, –69.3
c. 171.4, –329.7, –32.2
d. –2.7, 0.8, –0.6

Simplify the trigonometric expression.

____ 54. $\sec\theta\cos\theta$

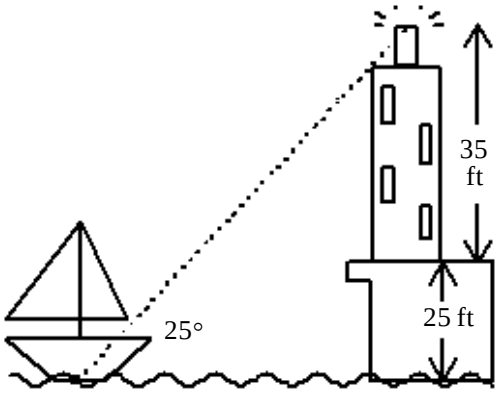
a. $\tan\theta$
b. 1
c. $\cot\theta$
d. $\sin\theta$

Use a calculator and inverse functions to find the radian measures of the given angle. Round your answer to the nearest hundredth.

____ 55. angles whose sine is 0.48

a. $1.07 + 2\pi n$ and $-1.07 + 2\pi n$
b. $0.50 + 2\pi n$ and $-3.64 + 2\pi n$
c. $-0.46 + 2\pi n$ and $2.68 + 2\pi n$
d. $0.50 + 2\pi n$ and $-0.50 + 2\pi n$

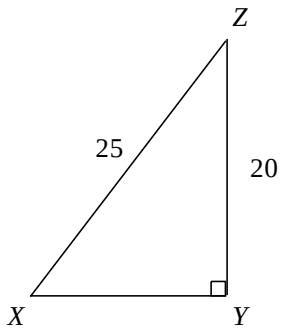
____ 56. The line of sight from a small boat to the light at the top of a 35-foot lighthouse built on a cliff 25 feet above the water makes a 25° angle with the water. To the nearest foot, how far is the boat from the cliff?



Drawing is not to scale.

a. 141 feet
b. 128 feet
c. 27 feet
d. 75 feet

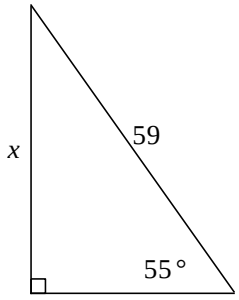
____ 57. In ΔXYZ, $\angle Y$ is a right angle and $\sin X = \frac{20}{25}$. Find cos X in fraction and in decimal form. Round to the nearest hundredth, if necessary.



a. $\frac{15}{20}; 0.75$ b. $\frac{25}{20}; 1.25$ c. $\frac{15}{25}; 0.6$ d. $\frac{25}{15}; 1.67$

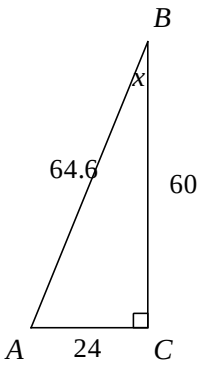
Find the length *x*. Round to the nearest tenth.

____ 58.



a. 33.8 b. 48.3 c. 84.3 d. 72.0

____ 59. In $\triangle ABC$, $\angle C$ is a right angle. Find $m\angle B$ to the nearest tenth of a degree.



a. 20.4 b. 68.2 c. 42.9 d. 21.8

Find the angle measure to the nearest tenth of a degree.

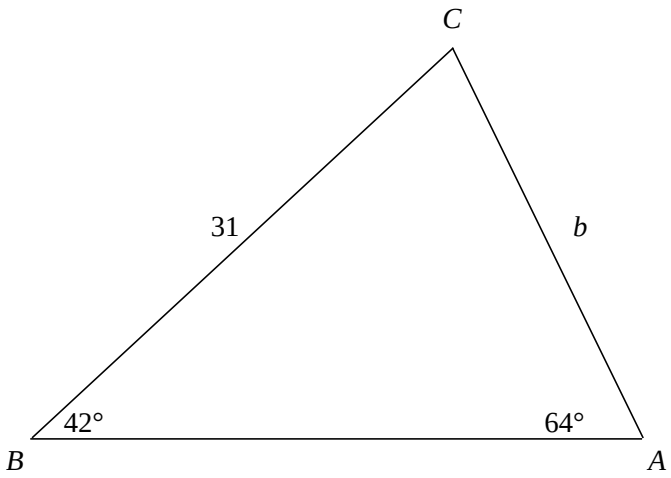
____ 60. $\sin^{-1}0.2026$

a. 0.2° b. 11.7° c. 78.3° d. 1.4°

____ 61. $\tan^{-1}7.9321$

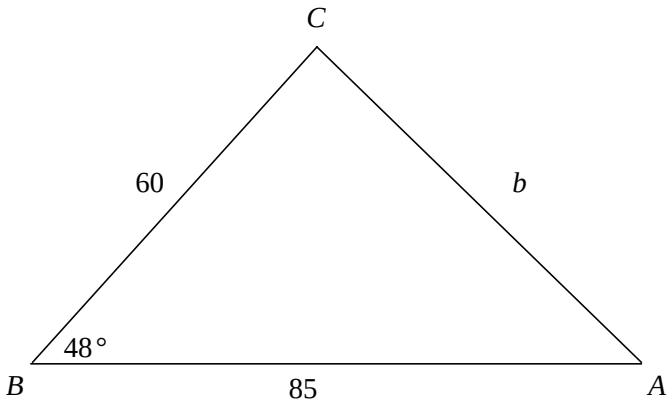
a. 7.2° b. 82.8° c. 1.4° d. 0.1°

____ 62. Use the Law of Sines. Find *b* to the nearest tenth.



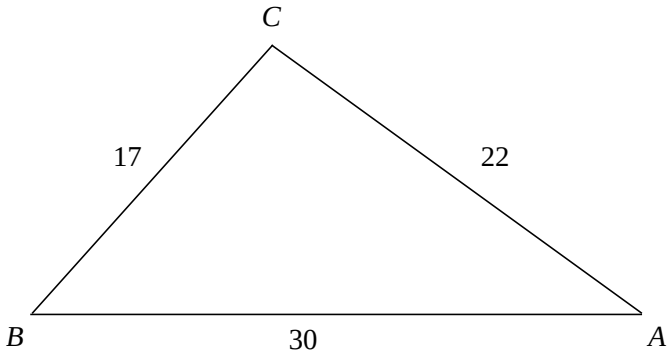
a. 47.3 b. 41.6 c. 18.6 d. 23.1

____ 63. Use the Law of Cosines. Find *b* to the nearest tenth.



a. 102.2 b. 62.4 c. 132.9 d. 63.2

____ 64. Use the Law of Cosines. Find $m\angle A$ to the nearest tenth of a degree.



a. 33.9° b. 57.7° c. 46.3° d. 85.7°

____ 65. In $\triangle JKL$, j = 9 in., k = 5 in., and $m\angle L$ = 43°. Find $m\angle J$.
a. 28° b. 59° c. 32° d. 75°

Find the exact value of the expression.

____ 66. tan 195°
a. $2 + \sqrt{3}$ b. $2 - \sqrt{3}$ c. $2 - \sqrt{3}$ d. $2 + \sqrt{3}$

____ 67. cos 255°

a. $\frac{-\sqrt{6} - \sqrt{2}}{4}$ b. $\frac{-\sqrt{6} + \sqrt{2}}{4}$ c. $\frac{\sqrt{6} - \sqrt{2}}{4}$ d. $\frac{\sqrt{6} + \sqrt{2}}{4}$

Use a half-angle identity to find the exact value of the expression.

____ 68. sin 105°

a. $\frac{\sqrt{2 + \sqrt{3}}}{2}$ b. $-\frac{\sqrt{2 + \sqrt{3}}}{2}$ c. $-\frac{\sqrt{2 - \sqrt{3}}}{2}$ d. $\frac{\sqrt{2 - \sqrt{3}}}{2}$

____ 69. tan 67.5°

a. $-\sqrt{\frac{2 + \sqrt{2}}{2 - \sqrt{2}}}$ b. $-\sqrt{\frac{2 - \sqrt{2}}{2 + \sqrt{2}}}$ c. $\sqrt{\frac{2 - \sqrt{2}}{2 + \sqrt{2}}}$ d. $\sqrt{\frac{2 + \sqrt{2}}{2 - \sqrt{2}}}$

____ 70. cos 67.5°

a. $-\frac{\sqrt{2 + \sqrt{2}}}{2}$ b. $\frac{\sqrt{2 - \sqrt{2}}}{2}$ c. $-\frac{\sqrt{2 - \sqrt{2}}}{2}$ d. $\frac{\sqrt{2 + \sqrt{2}}}{2}$

____ 71. Given $\cos\theta = \frac{2}{9}$ and $0° \le \theta \le 90°$, find the exact value of $\sin\frac{\theta}{2}$.

a. $\frac{\sqrt{22}}{3}$ b. $\frac{\sqrt{77}}{7}$ c. $\frac{\sqrt{14}}{3}$ d. $\frac{\sqrt{77}}{11}$

____ 72. Given $\sin\theta = \frac{12}{37}$ and $90° \le \theta \le 180°$, find the exact value of $\cos\frac{\theta}{2}$.

a. $-\frac{\sqrt{37}}{37}$ b. $\frac{\sqrt{37}}{37}$ c. $\frac{1}{6}$ d. $\frac{6\sqrt{37}}{37}$

Short Answer

Is the relationship between the variables in the table a direct variation, an inverse variation, or neither? If it is a direct or inverse variation, write a function to model it.

73.

x	–5	–3	0	5
y	80	48	0	–80

Sketch the asymptotes and graph the function.

74. $y = \dfrac{4}{x - 3} + 2$

Find any points of discontinuity for the rational function.

75. $y = \dfrac{(x + 1)(x - 5)(x - 1)}{(x + 3)(x - 7)}$

Multiply or divide. State any restrictions on the variables.

76. $\dfrac{d^2}{d + 1} \cdot \dfrac{d^2 - 2d - 3}{d^2 - 2d}$

Add or subtract. Simplify if possible.

77. $\dfrac{n^2 + 12n + 35}{n^2 + 5n - 14} + \dfrac{7}{n - 2}$

Simplify the complex fraction.

78. $\dfrac{\dfrac{3}{n} - \dfrac{2}{n}}{\dfrac{1}{3n} + \dfrac{2}{5n}}$

Solve the equation. Check the solution.

79. $\dfrac{m - 5}{m + 5} = \dfrac{m + 4}{m - 4}$

80. Alicia can row 4 miles downstream in the same time it takes her to row 2 miles upstream. She rows downstream 5 miles/hour faster than she rows upstream. Find Alicia's rowing rate each way. Round your answers to the nearest tenth, if necessary.

Suppose *Q* and *R* are independent events. Find *P*(*Q* and *R*).

81. $P(Q) = 0.46$, $P(R) = 0.47$

Suppose *S* and *T* are mutually exclusive events. Find *P*(*S* or *T*).

82. $P(S) = 29\%$, $P(T) = 48\%$

83. Consider the function $f(x) = (x - 3)^2 + 2$. Evaluate a sum to approximate the area under the curve for the domain $0 \le x \le 2$ using the type of rectangles in each part.
    a. Use inscribed rectangles 0.5 units wide.
    b. Use circumscribed rectangles 0.5 units wide.

84. Use a graphing calculator to solve the equation $-3 \cos t = 1$ in the interval from 0 to 2π. Round to the nearest hundredth.

85. The equation $h = 7 \cos\left(\frac{\pi}{3} t\right)$ models the height h in centimeters after t seconds of a weight attached to the end of a spring that has been stretched and then released.
    a. Solve the equation for t.
    b. Find the times at which the weight is first at a height of 1 cm, of 3 cm, and of 5 cm above the rest position. Round your answers to the nearest hundredth.

c. Find the times at which the weight is at a height of 1 cm, of 3 cm, and of 5 cm below the rest position for the second time. Round your answers to the nearest hundredth.

Essay

86. The table shows how the number of sit-ups Marla does each day has changed over time. At this rate, how many sit-ups will she do on Day 12? Explain your steps in solving this problem.

Day1	Day 2	Day 3	Day 4	Day 5
28	33	38	43	48

Algebra 2 Final Exam Review 2017
Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: L2 REF: 9-7 Probability of Multiple Events
   OBJ: 9-7.1 Finding P(A and B)
   NAT: NAEP D4c| CAT5.LV21/22.45| CAT5.LV21/22.46| CAT5.LV21/22.51| IT.LV17/18.CP| IT.LV17/18.DP| IT.LV17/18.FR| S9.TSK3.NS| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.15| TV.LV21/22.52| TV.LVALG.53 STA: NY A2.S.13 TOP: 9-7 Example 2
   KEY: probability | independent events
2. ANS: C PTS: 1 DIF: L2 REF: 9-1 Inverse Variation
   OBJ: 9-1.2 Using Combined Variation
   NAT: NAEP A2e| CAT5.LV21/22.50| CAT5.LV21/22.53| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.DI| IT.LV17/18.PS| S9.TSK3.DSP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.DSP| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.15| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.56 STA: NY A2.PS.9 | NY A2.A.5 | NY A2.CM.2 | NY A2.CM.11
   TOP: 9-1 Example 5 KEY: direct variation | combined variation
3. ANS: D PTS: 1 DIF: L2 REF: 9-4 Rational Expressions
   OBJ: 9-4.1 Simplifying Rational Expressions
   NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53 STA: NY A2.CM.11 | NY A2.N.3 | NY A2.A.7 | NY A2.A.17
   TOP: 9-4 Example 1
   KEY: rational expression | simplifying a rational expression | restrictions on a variable
4. ANS: B PTS: 1 DIF: L2
   REF: 9-5 Adding and Subtracting Rational Expressions
   OBJ: 9-5.1 Adding and Subtracting Rational Expressions
   NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.13| TV.LV21/22.52| TV.LVALG.53
   STA: NY A2.N.3 | NY A2.A.7 | NY A2.A.17 TOP: 9-5 Example 4
   KEY: simplifying a rational expression | subtracting rational expressions
5. ANS: C PTS: 1 DIF: L2
   REF: 9-2 The Reciprocal Function Family
   OBJ: 9-2.2 Graphing Translations of Reciprocal Functions
   NAT: NAEP A2e| NAEP A2a| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56
   TOP: 9-2 Example 5 KEY: asymptote | translation
6. ANS: A PTS: 1 DIF: L2 REF: 10-1 Exploring Conic Sections
   OBJ: 10-1.1 Graphing Equations of Conic Sections
   NAT: NAEP G4c| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.18| TV.LV21/22.52| TV.LVALG.56
   TOP: 10-1 Example 1 KEY: conic sections | graphing | circle | domain | range
7. ANS: B PTS: 1 DIF: L2 REF: 10-1 Exploring Conic Sections
   OBJ: 10-1.2 Identifying Conic Sections
   NAT: NAEP G4c| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.18| TV.LV21/22.52| TV.LVALG.56
   TOP: 10-1 Example 4 KEY: conic sections | ellipse | intercepts

8. ANS: A PTS: 1 DIF: L2 REF: 10-2 Parabolas
OBJ: 10-2.1 Writing the Equation of a Parabola
NAT: NAEP G4c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56 TOP: 10-2 Example 2
KEY: equation of a parabola | focus of a parabola | parabola | vertex of a parabola
9. ANS: C PTS: 1 DIF: L2 REF: 10-2 Parabolas
OBJ: 10-2.2 Graphing Parabolas
NAT: NAEP G4c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56 TOP: 10-2 Example 4
KEY: directrix | equation of a parabola | focus of a parabola | parabola | graphing
10. ANS: D PTS: 1 DIF: L3 REF: 10-3 Circles
OBJ: 10-3.1 Writing the Equation of a Circle
NAT: NAEP G4d| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56
STA: NY A2.CN.6 | NY A2.CN.7 | NY A2.R.6 | NY A2.A.47 | NY A2.A.48 | NY A2.A.49
TOP: 10-3 Example 3
KEY: center of a circle | circle | equation of a circle | problem solving | radius | word problem
11. ANS: D PTS: 1 DIF: L2 REF: 10-3 Circles
OBJ: 10-3.2 Using the Center and Radius of a Circle
NAT: NAEP G4d| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56
STA: NY A2.CN.6 | NY A2.CN.7 | NY A2.R.6 | NY A2.A.47 | NY A2.A.48 | NY A2.A.49
TOP: 10-3 Example 5
KEY: center of a circle | circle | equation of a circle | radius | translation
12. ANS: D PTS: 1 DIF: L2 REF: 10-4 Ellipses
OBJ: 10-4.1 Writing the Equation of an Ellipse
NAT: NAEP G4c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56 TOP: 10-4 Example 2
KEY: ellipse | equation of an ellipse | major axis of an ellipse | minor axis of an ellipse | problem solving | word problem
13. ANS: A PTS: 1 DIF: L2 REF: 10-4 Ellipses
OBJ: 10-4.2 Finding and Using the Foci of an Ellipse
NAT: NAEP G4c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56 TOP: 10-4 Example 3
KEY: co-vertex of an ellipse | ellipse | equation of an ellipse | graphing | foci of an ellipse | major axis of an ellipse | minor axis of an ellipse
14. ANS: D PTS: 1 DIF: L2 REF: 10-4 Ellipses
OBJ: 10-4.2 Finding and Using the Foci of an Ellipse
NAT: NAEP G4c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56 TOP: 10-4 Example 4
KEY: ellipse | equation of an ellipse | graphing | foci of an ellipse | major axis of an ellipse | minor axis of an ellipse
15. ANS: A PTS: 1 DIF: L3 REF: 10-5 Hyperbolas

OBJ: 10-5.1 Graphing Hyperbolas Centered at the Origin
NAT: NAEP G4c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56 TOP: 10-5 Example 1
KEY: asymptotes of a hyperbola | equation of a hyperbola | graphing | hyperbola | problem solving | transverse axis of a hyperbola | vertices of a hyperbola | word problem

16. ANS: D PTS: 1 DIF: L2 REF: 10-5 Hyperbolas
OBJ: 10-5.2 Using the Foci of a Hyperbola
NAT: NAEP G4c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56 TOP: 10-5 Example 3
KEY: equation of a hyperbola | foci of a hyperbola | equation of a hyperbola | word problem

17. ANS: D PTS: 1 DIF: L2 REF: 10-6 Translating Conic Sections
OBJ: 10-6.1 Writing Equations of Translated Conic Sections
NAT: NAEP G4c| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56| TV.LVALG.58
TOP: 10-6 Example 1
KEY: conic sections | co-vertex of an ellipse | equation of an ellipse | major axis of an ellipse | minor axis of an ellipse | translation | vertex of an ellipse

18. ANS: D PTS: 1 DIF: L2 REF: 11-1 Mathematical Patterns
OBJ: 11-1.1 Identifying Mathematical Patterns
NAT: NAEP A1a| NAEP A1b| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.DI| IT.LV17/18.DP| S9.TSK3.DSP| S9.TSK3.NS| S10.TSK3.DSP| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.15| TV.LV21/22.16| TV.LV21/22.50| TV.LVALG.53
STA: NY A2.PS.3 | NY A2.CM.2 | NY A2.R.8 | NY A2.A.29 | NY A2.A.32 | NY A2.A.33
TOP: 11-1 Example 1 KEY: sequence | pattern

19. ANS: D PTS: 1 DIF: L2 REF: 11-1 Mathematical Patterns |
OBJ: 11-1.2 Using Formulas to Generate Mathematical Patterns
NAT: NAEP A1a| NAEP A1b| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.DI| IT.LV17/18.DP| S9.TSK3.DSP| S9.TSK3.NS| S10.TSK3.DSP| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.15| TV.LV21/22.16| TV.LV21/22.50| TV.LVALG.53
STA: NY A2.PS.3 | NY A2.CM.2 | NY A2.R.8 | NY A2.A.29 | NY A2.A.32 | NY A2.A.33
TOP: 11-1 Example 4 KEY: explicit formula | problem solving | sequence

20. ANS: D PTS: 1 DIF: L2 REF: 11-2 Arithmetic Sequences
OBJ: 11-2.1 Identifying and Generating Arithmetic Sequences
NAT: NAEP A1a| CAT5.LV21/22.48| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.53| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.I| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.11| TV.LV21/22.49| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.54
STA: NY A2.PS.3 | NY A2.R.8 | NY A2.A.29 | NY A2.A.30 | NY A2.A.32 | NY A2.A.33
TOP: 11-2 Example 1 KEY: sequence | arithmetic sequence | common difference

21. ANS: A PTS: 1 DIF: L2 REF: 11-3 Geometric Sequences
OBJ: 11-3.1 Identifying and Generating Geometric Sequences
NAT: NAEP A1a| CAT5.LV21/22.47| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.PS.3 | NY A2.CM.2 | NY A2.R.3 | NY A2.R.8 | NY A2.A.29 | NY A2.A.31 | NY A2.A.32 | NY A2.A.33 TOP: 11-3 Example 2
KEY: common ratio | explicit formula | geometric sequence | sequence | pattern

22. ANS: D PTS: 1 DIF: L2 REF: 11-3 Geometric Sequences

OBJ: 11-3.1 Identifying and Generating Geometric Sequences
NAT: NAEP A1a| CAT5.LV21/22.47| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.PS.3 | NY A2.CM.2 | NY A2.R.3 | NY A2.R.8 | NY A2.A.29 | NY A2.A.31 | NY A2.A.32 | NY A2.A.33 TOP: 11-3 Example 3
KEY: geometric sequence | sequence | pattern | geometric mean

23. ANS: B PTS: 1 DIF: L2 REF: 11-4 Arithmetic Series
OBJ: 11-4.1 Writing and Evaluating Arithmetic Series
NAT: NAEP A1a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.CM.13 | NY A2.N.10 | NY A2.A.34 | NY A2.A.35
TOP: 11-4 Example 1
KEY: arithmetic sequence | arithmetic series | sequence | evaluating a series

24. ANS: B PTS: 1 DIF: L2 REF: 11-4 Arithmetic Series
OBJ: 11-4.1 Writing and Evaluating Arithmetic Series
NAT: NAEP A1a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.CM.13 | NY A2.N.10 | NY A2.A.34 | NY A2.A.35
TOP: 11-4 Example 2
KEY: arithmetic sequence | arithmetic series | sequence | evaluating a series

25. ANS: B PTS: 1 DIF: L3 REF: 11-4 Arithmetic Series
OBJ: 11-4.1 Writing and Evaluating Arithmetic Series
NAT: NAEP A1a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.CM.13 | NY A2.N.10 | NY A2.A.34 | NY A2.A.35
TOP: 11-4 Example 2
KEY: arithmetic sequence | arithmetic series | evaluating a series | sequence | problem solving | word problem

26. ANS: C PTS: 1 DIF: L2 REF: 11-4 Arithmetic Series
OBJ: 11-4.2 Using Summation Notation
NAT: NAEP A1a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.CM.13 | NY A2.N.10 | NY A2.A.34 | NY A2.A.35
TOP: 11-4 Example 3 KEY: arithmetic series | summation notation

27. ANS: A PTS: 1 DIF: L2 REF: 11-5 Geometric Series
OBJ: 11-5.1 Evaluating a Finite Geometric Series
NAT: NAEP A1a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.R.6 | NY A2.N.10 | NY A2.A.34 | NY A2.A.35 TOP: 11-5 Example 1
KEY: common ratio | evaluating a series | geometric series

28. ANS: D PTS: 1 DIF: L2 REF: 11-5 Geometric Series
OBJ: 11-5.1 Evaluating a Finite Geometric Series
NAT: NAEP A1a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53

STA: NY A2.R.6 | NY A2.N.10 | NY A2.A.34 | NY A2.A.35 TOP: 11-5 Example 2
KEY: geometric series | common ratio | evaluating a series | problem solving | word problem

29. ANS: D PTS: 1 DIF: L2 REF: 11-5 Geometric Series
OBJ: 11-5.1 Evaluating a Finite Geometric Series
NAT: NAEP A1a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.R.6 | NY A2.N.10 | NY A2.A.34 | NY A2.A.35 TOP: 11-5 Example 2
KEY: geometric series | common ratio | evaluating a series | problem solving | word problem

30. ANS: C PTS: 1 DIF: L2 REF: 11-5 Geometric Series
OBJ: 11-5.2 Evaluating an Infinite Geometric Series
NAT: NAEP A1a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.R.6 | NY A2.N.10 | NY A2.A.34 | NY A2.A.35 TOP: 11-5 Example 3
KEY: geometric series | common ratio | divergent series | convergent series | infinite geometric series

31. ANS: A PTS: 1 DIF: L2 REF: 11-5 Geometric Series
OBJ: 11-5.2 Evaluating an Infinite Geometric Series
NAT: NAEP A1a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.R.6 | NY A2.N.10 | NY A2.A.34 | NY A2.A.35 TOP: 11-5 Example 4
KEY: evaluating a series | geometric series | infinite geometric series | arithmetic mean

32. ANS: B PTS: 1 DIF: L2 REF: 12-1 Probability Distributions
OBJ: 12-1.1 Making a Probability Distribution
NAT: CAT5.LV21/22.45| CAT5.LV21/22.46| CAT5.LV21/22.51| CAT5.LV21/22.53| IT.LV17/18.CP| IT.LV17/18.DI| IT.LV17/18.DP| IT.LV17/18.FR| S9.TSK3.DSP| S9.TSK3.NS| S10.TSK3.DSP| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.15| TV.LV21/22.47| TV.LVALG.53| TV.LVALG.56 TOP: 12-1 Example 1 KEY: frequency table

33. ANS: B PTS: 1 DIF: L2 REF: 12-2 Conditional Probability
OBJ: 12-2.2 Using Formulas and Tree Diagrams
NAT: NAEP D4e| NAEP D4i| CAT5.LV21/22.45| CAT5.LV21/22.46| CAT5.LV21/22.51| CAT5.LV21/22.53| IT.LV17/18.CP| IT.LV17/18.DI| IT.LV17/18.DP| IT.LV17/18.FR| S9.TSK3.DSP| S9.TSK3.NS| S10.TSK3.DSP| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.15| TV.LV21/22.47| TV.LVALG.53 TOP: 12-2 Example 3
KEY: conditional probability | word problem | problem solving

34. ANS: A PTS: 1 DIF: L2 REF: 12-3 Analyzing Data
OBJ: 12-3.2 Box-and-Whisker Plots
NAT: NAEP D1b| NAEP D1d| NAEP D2a| CAT5.LV21/22.47| CAT5.LV21/22.51| CAT5.LV21/22.53| IT.LV17/18.CP| IT.LV17/18.DI| IT.LV17/18.I| IT.LV17/18.PS| S9.TSK3.DSP| S9.TSK3.NS| S10.TSK3.DSP| S10.TSK3.NS| TV.LV21/22.15| TV.LV21/22.17| TV.LV21/22.49| TV.LVALG.53
STA: NY A2.CM.11 | NY A2.CM.12 | NY A2.R.7 | NY A2.S.3 | NY A2.S.4
TOP: 12-3 Example 3 KEY: median | quartile | box-and-whisker plot

35. ANS: D PTS: 1 DIF: L2 REF: 12-4 Standard Deviation
OBJ: 12-4.1 Finding Standard Deviation
NAT: NAEP D2a| NAEP D2d| CAT5.LV21/22.51| CAT5.LV21/22.53| IT.LV17/18.CP| IT.LV17/18.DI| IT.LV17/18.PS| S9.TSK3.DSP| S9.TSK3.NS| S10.TSK3.DSP| S10.TSK3.NS| TV.LV21/22.12| TV.LV21/22.15| TV.LVALG.53 STA: NY A2.R.7 | NY A2.S.4 | NY A2.RP.5
TOP: 12-4 Example 1 KEY: range | interquartile range

36. ANS: C PTS: 1 DIF: L2 REF: 12-4 Standard Deviation

OBJ: 12-4.2 Using Standard Deviation
NAT: NAEP D2a| NAEP D2d| CAT5.LV21/22.51| CAT5.LV21/22.53| IT.LV17/18.CP| IT.LV17/18.DI| IT.LV17/18.PS| S9.TSK3.DSP| S9.TSK3.NS| S10.TSK3.DSP| S10.TSK3.NS| TV.LV21/22.12| TV.LV21/22.15| TV.LVALG.53 STA: NY A2.R.7 | NY A2.S.4 | NY A2.RP.5
TOP: 12-4 Example 4 KEY: standard deviation

37. ANS: D PTS: 1 DIF: L2 REF: 12-4 Standard Deviation
OBJ: 12-4.2 Using Standard Deviation
NAT: NAEP D2a| NAEP D2d| CAT5.LV21/22.51| CAT5.LV21/22.53| IT.LV17/18.CP| IT.LV17/18.DI| IT.LV17/18.PS| S9.TSK3.DSP| S9.TSK3.NS| S10.TSK3.DSP| S10.TSK3.NS| TV.LV21/22.12| TV.LV21/22.15| TV.LVALG.53 STA: NY A2.R.7 | NY A2.S.4 | NY A2.RP.5
TOP: 12-4 Example 5 KEY: standard deviation | z-score

38. ANS: B PTS: 1 DIF: L2 REF: 12-5 Working With Samples
OBJ: 12-5.1 Sampling Without Bias
NAT: NAEP D3c| CAT5.LV21/22.48| CAT5.LV21/22.53| IT.LV17/18.DI| IT.LV17/18.DP| S9.TSK3.DSP| S9.TSK3.NS| S10.TSK3.DSP| S10.TSK3.NS| TV.LV21/22.15| TV.LV21/22.50| TV.LVALG.53
STA: NY A2.R.7 | NY A2.S.2 | NY A2.S.4 TOP: 12-5 Example 1
KEY: sample proportion | sample

39. ANS: B PTS: 1 DIF: L2 REF: 12-5 Working With Samples
OBJ: 12-5.2 Sample Size
NAT: NAEP D3c| CAT5.LV21/22.48| CAT5.LV21/22.53| IT.LV17/18.DI| IT.LV17/18.DP| S9.TSK3.DSP| S9.TSK3.NS| S10.TSK3.DSP| S10.TSK3.NS| TV.LV21/22.15| TV.LV21/22.50| TV.LVALG.53
STA: NY A2.R.7 | NY A2.S.2 | NY A2.S.4 TOP: 12-5 Example 4
KEY: sample | sample size | margin of error

40. ANS: C PTS: 1 DIF: L2 REF: 12-6 Binomial Distributions
OBJ: 12-6.1 Finding Binomial Probabilities
NAT: NAEP D4h| CAT5.LV21/22.45| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.53| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.DI| IT.LV17/18.DP| S9.TSK3.DSP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.DSP| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.15| TV.LV21/22.47| TV.LV21/22.52| TV.LVALG.53 STA: NY A2.R.8 | NY A2.S.13 | NY A2.S.15
TOP: 12-6 Example 3 KEY: binomial probability

41. ANS: B PTS: 1 DIF: L2 REF: 13-1 Exploring Periodic Data
OBJ: 13-1.1 Identifying Periodic Functions
NAT: CAT5.LV21/22.54| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.16| TV.LVALG.53| TV.LVALG.56 STA: NY A2.R.6 | NY A2.A.69
TOP: 13-1 Example 2 KEY: cycle | period | periodic function

42. ANS: A PTS: 1 DIF: L2 REF: 13-2 Angles and the Unit Circle
OBJ: 13-2.1 Working With Angles in Standard Position
NAT: CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S10.TSK3.GM| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.58
STA: NY A2.RP.2 | NY A2.R.3 | NY A2.A.55 | NY A2.A.56 | NY A2.A.57 | NY A2.A.60 | NY A2.A.62
TOP: 13-2 Example 1
KEY: standard position of an angle | initial side of an angle | terminal side of an angle | measure of an angle in standard position

43. ANS: C PTS: 1 DIF: L2 REF: 13-2 Angles and the Unit Circle
OBJ: 13-2.1 Working With Angles in Standard Position
NAT: CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S10.TSK3.GM| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.58
STA: NY A2.RP.2 | NY A2.R.3 | NY A2.A.55 | NY A2.A.56 | NY A2.A.57 | NY A2.A.60 | NY A2.A.62
TOP: 13-2 Example 2

KEY: initial side of an angle | measure of an angle in standard position | standard position of an angle | terminal side of an angle

44. ANS: A PTS: 1 DIF: L3 REF: 13-2 Angles and the Unit Circle
OBJ: 13-2.1 Working With Angles in Standard Position
NAT: CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S10.TSK3.GM| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.58
STA: NY A2.RP.2 | NY A2.R.3 | NY A2.A.55 | NY A2.A.56 | NY A2.A.57 | NY A2.A.60 | NY A2.A.62
TOP: 13-2 Example 3
KEY: initial side of an angle | measure of an angle in standard position | standard position of an angle | terminal side of an angle

45. ANS: A PTS: 1 DIF: L2 REF: 13-3 Radian Measure
OBJ: 13-3.1 Using Radian Measure
NAT: CAT5.LV21/22.51| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S10.TSK3.GM| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.58
STA: NY A2.A.56 | NY A2.A.57 | NY A2.A.61 | NY A2.M.1 | NY A2.M.2
TOP: 13-3 Example 1 KEY: radian measure | measure of an angle in standard position

46. ANS: C PTS: 1 DIF: L2 REF: 13-3 Radian Measure
OBJ: 13-3.1 Using Radian Measure
NAT: CAT5.LV21/22.51| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S10.TSK3.GM| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.58
STA: NY A2.A.56 | NY A2.A.57 | NY A2.A.61 | NY A2.M.1 | NY A2.M.2
TOP: 13-3 Example 2 KEY: radian measure | measure of an angle in standard position

47. ANS: D PTS: 1 DIF: L3 REF: 13-3 Radian Measure
OBJ: 13-3.2 Finding the Length of an Arc
NAT: CAT5.LV21/22.51| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S10.TSK3.GM| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.58
STA: NY A2.A.56 | NY A2.A.57 | NY A2.A.61 | NY A2.M.1 | NY A2.M.2
TOP: 13-3 Example 5 KEY: central angle | problem solving | radian measure

48. ANS: B PTS: 1 DIF: L2 REF: 13-4 The Sine Function
OBJ: 13-4.1 Interpreting Sine Functions
NAT: NAEP M1m| CAT5.LV21/22.51| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S10.TSK3.GM| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.56
STA: NY A2.R.6 | NY A2.A.56 | NY A2.A.69 | NY A2.A.70 | NY A2.A.72
TOP: 13-4 Example 3 KEY: sine function | period | graphing

49. ANS: D PTS: 1 DIF: L2 REF: 13-4 The Sine Function
OBJ: 13-4.1 Interpreting Sine Functions
NAT: NAEP M1m| CAT5.LV21/22.51| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S10.TSK3.GM| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.56
STA: NY A2.R.6 | NY A2.A.56 | NY A2.A.69 | NY A2.A.70 | NY A2.A.72
TOP: 13-4 Example 4 KEY: amplitude | sine function | graphing

50. ANS: C PTS: 1 DIF: L2 REF: 13-4 The Sine Function
OBJ: 13-4.2 Graphing Sine Functions
NAT: NAEP M1m| CAT5.LV21/22.51| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S10.TSK3.GM| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.56

STA: NY A2.R.6 | NY A2.A.56 | NY A2.A.69 | NY A2.A.70 | NY A2.A.72
TOP: 13-4 Example 6 KEY: amplitude | graphing | sine function | period

51. ANS: B PTS: 1 DIF: L2 REF: 13-4 The Sine Function
OBJ: 13-4.2 Graphing Sine Functions
NAT: NAEP M1m| CAT5.LV21/22.51| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S10.TSK3.GM| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.56
STA: NY A2.R.6 | NY A2.A.56 | NY A2.A.69 | NY A2.A.70 | NY A2.A.72
TOP: 13-4 Example 7 KEY: amplitude | graphing | period

52. ANS: A PTS: 1 DIF: L2 REF: 13-6 The Tangent Function
OBJ: 13-6.1 Graphing the Tangent Function
NAT: NAEP M1m| CAT5.LV21/22.51| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S10.TSK3.GM| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.56 STA: NY A2.A.71
TOP: 13-6 Example 2 KEY: period | graphing | tangent function

53. ANS: B PTS: 1 DIF: L2 REF: 13-6 The Tangent Function
OBJ: 13-6.1 Graphing the Tangent Function
NAT: NAEP M1m| CAT5.LV21/22.51| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S10.TSK3.GM| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.56 STA: NY A2.A.71
TOP: 13-6 Example 3 KEY: period | graphing | tangent function | graphing calculator

54. ANS: B PTS: 1 DIF: L2 REF: 14-1 Trigonometric Identities
OBJ: 14-1.1 Verifying Trigonometric Identities
NAT: NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.A.58 | NY A2.A.67 TOP: 14-1 Example 3
KEY: trigonometric identities | simplifying trigonometric expressions

55. ANS: B PTS: 1 DIF: L2
REF: 14-2 Solving Trigonometric Equations Using Inverses
OBJ: 14-2.1 Inverses of Trigonometric Functions
NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.A.63 | NY A2.A.64 | NY A2.A.68 TOP: 14-2 Example 3
KEY: radian measure | inverse of a trigonometric equation | graphing calculator | sine function

56. ANS: B PTS: 1 DIF: L2
REF: 14-3 Right Triangles and Trigonometric Ratios
OBJ: 14-3.1 Finding the Lengths of Sides in a Right Triangle
NAT: NAEP M1m| CAT5.LV21/22.46| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.FR| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.55 | NY A2.A.56 | NY A2.A.58 | NY A2.A.59 TOP: 14-3 Example 1
KEY: trigonometric ratios | tangent function | angle measure | problem solving

57. ANS: C PTS: 1 DIF: L2
REF: 14-3 Right Triangles and Trigonometric Ratios
OBJ: 14-3.1 Finding the Lengths of Sides in a Right Triangle
NAT: NAEP M1m| CAT5.LV21/22.46| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.FR| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14|

TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.55 | NY A2.A.56 | NY A2.A.58 | NY A2.A.59 TOP: 14-3 Example 2
KEY: trigonometric ratios | Pythagorean Theorem

58. ANS: B PTS: 1 DIF: L2
REF: 14-3 Right Triangles and Trigonometric Ratios
OBJ: 14-3.1 Finding the Lengths of Sides in a Right Triangle
NAT: NAEP M1m| CAT5.LV21/22.46| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.FR| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.55 | NY A2.A.56 | NY A2.A.58 | NY A2.A.59 TOP: 14-3 Example 3
KEY: angle measure | trigonometric ratios | sine function

59. ANS: D PTS: 1 DIF: L2
REF: 14-3 Right Triangles and Trigonometric Ratios
OBJ: 14-3.2 Finding the Measures of Angles in a Right Triangle
NAT: NAEP M1m| CAT5.LV21/22.46| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.FR| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.55 | NY A2.A.56 | NY A2.A.58 | NY A2.A.59 TOP: 14-3 Example 4
KEY: angle measure | trigonometric ratios

60. ANS: B PTS: 1 DIF: L2
REF: 14-3 Right Triangles and Trigonometric Ratios
OBJ: 14-3.2 Finding the Measures of Angles in a Right Triangle
NAT: NAEP M1m| CAT5.LV21/22.46| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.FR| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.55 | NY A2.A.56 | NY A2.A.58 | NY A2.A.59 TOP: 14-3 Example 4
KEY: angle measure | sine function | cosine function | inverses of trigonometric functions

61. ANS: B PTS: 1 DIF: L2
REF: 14-3 Right Triangles and Trigonometric Ratios
OBJ: 14-3.2 Finding the Measures of Angles in a Right Triangle
NAT: NAEP M1m| CAT5.LV21/22.46| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.FR| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.55 | NY A2.A.56 | NY A2.A.58 | NY A2.A.59 TOP: 14-3 Example 4
KEY: angle measure | tangent function | inverses of trigonometric functions

62. ANS: D PTS: 1 DIF: L2 REF: 14-4 Area and the Law of Sines
OBJ: 14-4.1 Area and the Law of Sines
NAT: NAEP A4e| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.66 | NY A2.A.68 | NY A2.A.73 | NY A2.A.74 TOP: 14-4 Example 2
KEY: Law of Sines

63. ANS: D PTS: 1 DIF: L2 REF: 14-5 The Law of Cosines
OBJ: 14-5.1 The Law of Cosines
NAT: NAEP A4e| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA|

TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.66 | NY A2.A.73 TOP: 14-5 Example 1
KEY: Law of Cosines

64. ANS: A PTS: 1 DIF: L2 REF: 14-5 The Law of Cosines
OBJ: 14-5.1 The Law of Cosines
NAT: NAEP A4e| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.66 | NY A2.A.73 TOP: 14-5 Example 2
KEY: Law of Cosines

65. ANS: D PTS: 1 DIF: L2 REF: 14-5 The Law of Cosines
OBJ: 14-5.1 The Law of Cosines
NAT: NAEP A4e| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.66 | NY A2.A.73 TOP: 14-5 Example 3
KEY: Law of Cosines | Law of Sines | finding an angle of a triangle

66. ANS: C PTS: 1 DIF: L2 REF: 14-6 Angle Identities
OBJ: 14-6.2 Sum and Difference Identities
NAT: NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.CN.8 | NY A2.A.56 | NY A2.A.66 | NY A2.A.76 TOP: 14-6 Example 4
KEY: angle identities | angle difference identities | angle sum identities | exact values of trigonometric functions

67. ANS: A PTS: 1 DIF: L2 REF: 14-6 Angle Identities
OBJ: 14-6.2 Sum and Difference Identities
NAT: NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.CN.8 | NY A2.A.56 | NY A2.A.66 | NY A2.A.76 TOP: 14-6 Example 4
KEY: angle identities | angle difference identities | angle sum identities | exact values of trigonometric functions

68. ANS: A PTS: 1 DIF: L2
REF: 14-7 Double-Angle and Half-Angle Identities OBJ: 14-7.2 Half-Angle Identities
NAT: NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.56 | NY A2.A.66 | NY A2.A.77 TOP: 14-7 Example 3
KEY: angle identities | sine function | half-angle identities | exact values of trigonometric functions | angle measure

69. ANS: D PTS: 1 DIF: L2
REF: 14-7 Double-Angle and Half-Angle Identities OBJ: 14-7.2 Half-Angle Identities
NAT: NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.56 | NY A2.A.66 | NY A2.A.77 TOP: 14-7 Example 3
KEY: angle identities | tangent function | half-angle identities | exact values of trigonometric functions | angle measure

70. ANS: B PTS: 1 DIF: L2

REF: 14-7 Double-Angle and Half-Angle Identities OBJ: 14-7.2 Half-Angle Identities
NAT: NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.56 | NY A2.A.66 | NY A2.A.77 TOP: 14-7 Example 3
KEY: angle identities | cosine function | half-angle identities | exact values of trigonometric functions | angle measure

71. ANS: C PTS: 1 DIF: L2
REF: 14-7 Double-Angle and Half-Angle Identities OBJ: 14-7.2 Half-Angle Identities
NAT: NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.56 | NY A2.A.66 | NY A2.A.77 TOP: 14-7 Example 4
KEY: angle identities | half-angle identities | exact values of trigonometric functions

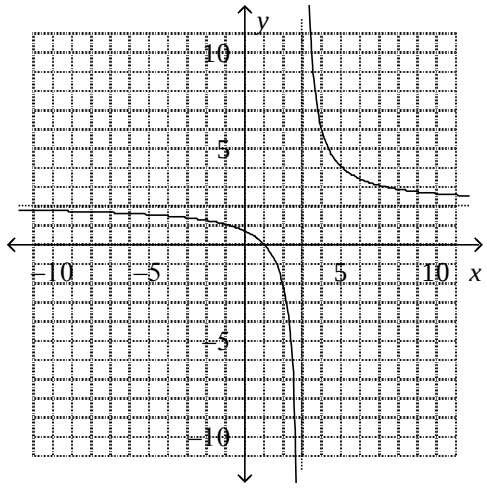
72. ANS: B PTS: 1 DIF: L2
REF: 14-7 Double-Angle and Half-Angle Identities OBJ: 14-7.2 Half-Angle Identities
NAT: NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.58
STA: NY A2.A.56 | NY A2.A.66 | NY A2.A.77 TOP: 14-7 Example 4
KEY: angle identities | half-angle identities | exact values of trigonometric functions

SHORT ANSWER

73. ANS:
direct variation; $y = -16x$

PTS: 1 DIF: L2 REF: 9-1 Inverse Variation
OBJ: 9-1.1 Using Inverse Variation
NAT: NAEP A2e| CAT5.LV21/22.50| CAT5.LV21/22.53| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.DI| IT.LV17/18.PS| S9.TSK3.DSP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.DSP| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.15| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.56 STA: NY A2.PS.9 | NY A2.A.5 | NY A2.CM.2 | NY A2.CM.11
TOP: 9-1 Example 2 KEY: rational function | direct variation

74. ANS:



PTS: 1 DIF: L2 REF: 9-2 The Reciprocal Function Family
OBJ: 9-2.2 Graphing Translations of Reciprocal Functions
NAT: NAEP A2e| NAEP A2a| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56
TOP: 9-2 Example 4 KEY: graphing | asymptote

75. ANS:
$x = -3, x = 7$

PTS: 1 DIF: L2 REF: 9-3 Rational Functions and Their Graphs
OBJ: 9-3.1 Properties of Rational Functions
NAT: NAEP A2a| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.53| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.DI| S9.TSK3.DSP| S9.TSK3.PRA| S10.TSK3.DSP| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.15| TV.LV21/22.52| TV.LVALG.56
TOP: 9-3 Example 1 KEY: rational function | point of discontinuity

76. ANS:
$\frac{d^2 - 3d}{d - 2}, \ d \neq -1, \ 0, \ 2$

PTS: 1 DIF: L2 REF: 9-4 Rational Expressions
OBJ: 9-4.2 Multiplying and Dividing Rational Expressions
NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53 STA: NY A2.CM.11 | NY A2.N.3 | NY A2.A.7 | NY A2.A.17
TOP: 9-4 Example 3
KEY: simplifying a rational expression | restrictions on a variable | multiplying rational expressions

77. ANS:
$\frac{n + 12}{n - 2}$

PTS: 1 DIF: L2 REF: 9-5 Adding and Subtracting Rational Expressions
OBJ: 9-5.1 Adding and Subtracting Rational Expressions
NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.13| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.N.3 | NY A2.A.7 | NY A2.A.17 TOP: 9-5 Example 3
KEY: simplifying a rational expression | adding rational expressions

78. ANS:
15
11

PTS: 1 DIF: L2 REF: 9-5 Adding and Subtracting Rational Expressions
OBJ: 9-5.2 Simplifying Complex Fractions
NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.13| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.N.3 | NY A2.A.7 | NY A2.A.17 TOP: 9-5 Example 5
KEY: complex fraction | simplifying a rational expression | simplifying a complex fraction

79. ANS:

0

PTS: 1 DIF: L2 REF: 9-6 Solving Rational Equations
OBJ: 9-6.1 Solving Rational Equations
NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.N.3 | NY A2.A.7 | NY A2.A.17 | NY A2.A.23 TOP: 9-6 Example 1
KEY: rational equation

80. ANS:
1.6 mi/h downstream, 0.8 mi/h upstream

PTS: 1 DIF: L2 REF: 9-6 Solving Rational Equations
OBJ: 9-6.2 Using Rational Equations
NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.N.3 | NY A2.A.7 | NY A2.A.17 | NY A2.A.23 TOP: 9-6 Example 3
KEY: average | problem solving | word problem

81. ANS:
0.2162

PTS: 1 DIF: L2 REF: 9-7 Probability of Multiple Events
OBJ: 9-7.1 Finding P(A and B)
NAT: NAEP D4c| CAT5.LV21/22.45| CAT5.LV21/22.46| CAT5.LV21/22.51| IT.LV17/18.CP| IT.LV17/18.DP| IT.LV17/18.FR| S9.TSK3.NS| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.15| TV.LV21/22.52| TV.LVALG.53 STA: NY A2.S.13 TOP: 9-7 Example 2
KEY: probability | independent events

82. ANS:
77%

PTS: 1 DIF: L2 REF: 9-7 Probability of Multiple Events
OBJ: 9-7.2 Finding P(A or B)
NAT: NAEP D4c| CAT5.LV21/22.45| CAT5.LV21/22.46| CAT5.LV21/22.51| IT.LV17/18.CP| IT.LV17/18.DP| IT.LV17/18.FR| S9.TSK3.NS| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.15| TV.LV21/22.52| TV.LVALG.53 STA: NY A2.S.13 TOP: 9-7 Example 4
KEY: mutually exclusive events | probability

83. ANS:
a. 10.75 units^2
b. 14.75 units^2

PTS: 1 DIF: L2 REF: 11-6 Area Under a Curve
OBJ: 11-6.1 Finding Area Under a Curve
NAT: CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.56 TOP: 11-6 Example 2
KEY: area under a curve | inscribed rectangles | circumscribed rectangles

84. ANS:
1.91; 4.37

PTS: 1 DIF: L3 REF: 13-5 The Cosine Function
OBJ: 13-5.2 Solving Trigonometric Equations
NAT: NAEP M1m| CAT5.LV21/22.51| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S10.TSK3.GM| S10.TSK3.NS| TV.LV21/22.11| TV.LV21/22.13| TV.LV21/22.14| TV.LVALG.56
STA: NY A2.R.6 | NY A2.A.56 | NY A2.A.69 | NY A2.A.70 TOP: 13-5 Example 4
KEY: cosine of an angle | graphing | trigonometric function | cosine equation

85. ANS:

a. $t = \frac{3}{\pi} \cos^{-1}\left(\frac{h}{7}\right)$

b. 1.36 s, 1.08 s, 0.74 s
c. 4.36 s, 4.08 s, 3.74 s

PTS: 1 DIF: L3 REF: 14-2 Solving Trigonometric Equations Using Inverses
OBJ: 14-2.2 Solving Trigonometric Equations
NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.53
STA: NY A2.A.63 | NY A2.A.64 | NY A2.A.68 TOP: 14-2 Example 7
KEY: problem solving | cosine function | radian measure | inverse of a trigonometric equation | multi-part question

ESSAY

86. ANS:

[4] To find the number of sit-ups on Day 12, first write an explicit formula for the sequence using the explicit formula $a_n = a_1 + (n - 1)d$. You can see that the first term, a_1, is 28 and the common difference is 5. Substitute these values into the formula: $a_n = 28 + (n - 1)5$. Next, substitute 12 into the formula for *n* and solve for a_n. $a_n = 28 + (12 - 1)5$. Simplify to find that $a_n = 83$. She will do 83 sit-ups on Day 12.
[3] correct procedure with one minor mathematical error
[2] correct procedure with two minor mathematical errors
[1] incomplete procedure or correct answer with no explanation or work shown

PTS: 1 DIF: L3 REF: 11-2 Arithmetic Sequences
OBJ: 11-2.1 Identifying and Generating Arithmetic Sequences
NAT: NAEP A1a| CAT5.LV21/22.48| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.53| IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.I| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.11| TV.LV21/22.49| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.54
STA: NY A2.PS.3 | NY A2.R.8 | NY A2.A.29 | NY A2.A.30 | NY A2.A.32 | NY A2.A.33
TOP: 11-2 Example 2
KEY: arithmetic sequence | common difference | explicit formula | extended response | problem solving | rubric-based question | sequence | writing in math