Name _____ Date _____

Chapter 10 Test Prep

1. Which function has a period of 8π and an amplitude of 7?

Ⓐ $y = 7\cos 4x$

Ⓑ $y = 7\sin(8x + 3)$

Ⓒ $y = -7\sin\frac{1}{4}x + 1$

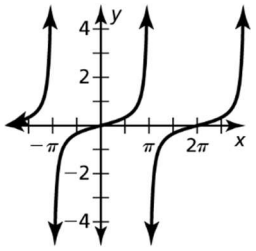
Ⓓ $y = -8\pi\cos 7x$

2. You flip a coin and roll a six-sided die. What is the probability that the coin shows heads and the die shows an even number?

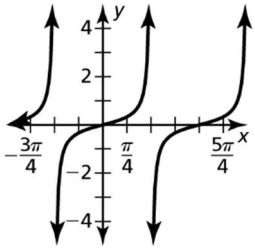
						%
⊖	⊖	⊖	⊖	⊖	⊖	⊖
	⁄	⁄	⁄	⁄	⁄	
⊙	⊙	⊙	⊙	⊙	⊙	⊙
0	0	0	0	0	0	0
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

3. Which graph represents the function $g(x) = \frac{1}{3}\cot\frac{1}{2}x$?

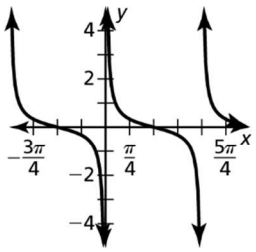
Ⓐ



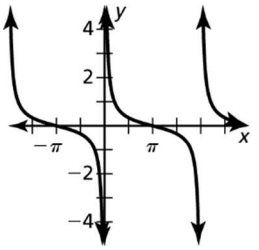
Ⓑ



Ⓒ



Ⓓ



4. Write a polynomial function f of least degree that has rational coefficients, a leading coefficient of 1, and the zeros 4, $-\sqrt{5}$, and –5.

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Name _____ Date _____

Chapter 10 Test Prep (continued)

5. Write a function for the sinusoid.

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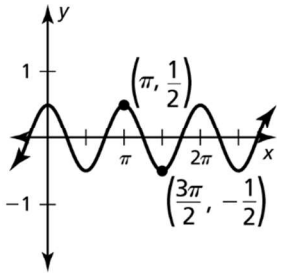


6. Which system has no solution?

Ⓐ $y = -2x^2 - 6$
$y = -(x - 3)^2 + 8$

Ⓑ $8x + y = -2x^2 - 8$
$x^2 - y - 6x = -10$

Ⓒ $y = 2x + 5$
$x^2 + y^2 = 5$

Ⓓ $y - 4x = x^2$
$-8x - 4y = 20$

7. A researcher places mold samples in two different climates. The researcher then measures the mold growth in each sample after 1 week. What method of data collection did the researcher use?

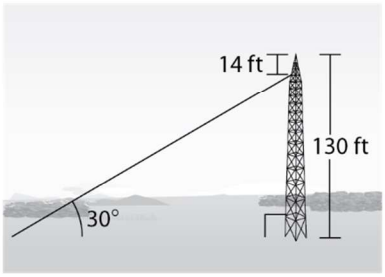
Ⓐ experiment

Ⓑ observational study

Ⓒ survey

Ⓓ simulation

8. A radio transmission tower at your local television station is 130 feet tall. How long should a guy wire be if it is attached 14 feet below the top of the tower making a 30° angle with the ground?



ft

⊖	⊖	⊖	⊖	⊖	⊖	⊖
	⁄	⁄	⁄	⁄	⁄	
·	·	·	·	·	·	·
0	0	0	0	0	0	0
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
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9	9	9	9	9	9	9

Name_____ Date _____

Chapter 10 Test Prep (continued)

9. Let g be a horizontal stretch by a factor of 5, followed by a translation 6 units right of the graph of $f(x) = \sqrt{10x}$. Which of the following is a rule for g?

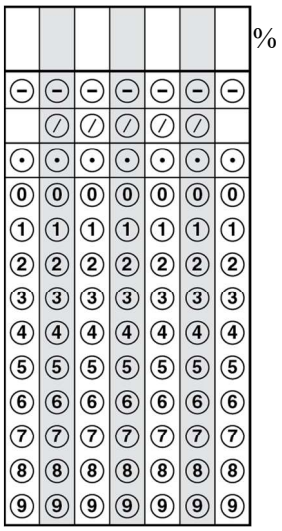
Ⓐ $g(x) = \sqrt{2x - 12}$

Ⓑ $g(x) = \sqrt{50x - 6}$

Ⓒ $g(x) = \sqrt{50x - 300}$

Ⓓ $g(x) = 5\sqrt{10x - 60}$

10. A professional football team leads at halftime in 40% of the games in a season. The team wins 90% of the time when leading at halftime, but only 20% of the time when not leading at halftime. What is the probability that the team wins a particular game in the season?



11. Select all the solutions of $\sin(x + \pi) = -\frac{1}{2}$ for $0 \leq x < 2\pi$.

Ⓐ $x = \frac{\pi}{6}$

Ⓑ $x = \frac{5\pi}{6}$

Ⓒ $x = \frac{7\pi}{6}$

Ⓓ $x = \frac{11\pi}{6}$

Ⓔ $x = \frac{13\pi}{6}$

12. Select all the angles that are coterminal with $-130°$.

Ⓐ $1210°$

Ⓑ $590°$

Ⓒ $-850°$

Ⓓ $\frac{23\pi}{18}$

Ⓔ $\frac{5\pi}{18}$

Ⓕ $-\frac{49\pi}{18}$

Name _____ Date _____

Chapter 10 Test Prep (continued)

13. Given that $\sin\theta = \frac{3}{8}$ and $\frac{\pi}{2} < \theta < \pi$, which of the following is *not* a trigonometric function of θ?

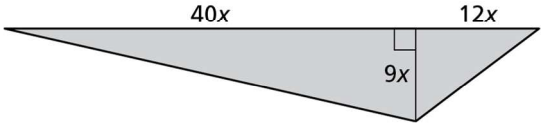
Ⓐ $\cot\theta = -\frac{\sqrt{55}}{3}$

Ⓑ $\cos\theta = \frac{\sqrt{55}}{8}$

Ⓒ $\tan\theta = -\frac{3\sqrt{55}}{55}$

Ⓓ $\csc\theta = \frac{8}{3}$

14. What is the ratio of the perimeter to the area of the triangle?



Ⓐ $\frac{13x}{3}$

Ⓑ $\frac{13}{3x}$

Ⓒ $\frac{13x}{6}$

Ⓓ $\frac{6}{13x}$

15. In what quadrant does the terminal side of θ lie when $\cot\theta > 0$ and $\cos\theta < 0$?

Ⓐ Quadrant I

Ⓑ Quadrant II

Ⓒ Quadrant III

Ⓓ Quadrant IV

16. The table shows the numbers of rabbits r in a forest t years after a forest fire. How many years will it take for the rabbit population to surpass 20,000? Round your answer to the nearest hundredth.

t	0	1	2	3	4	5
r	20	60	180	540	1620	4860

yr