Trig Year 4th Nine Weeks Review

Name _____

_____1. Using the domain of $(0°, 360°]$, solve $(2 \cos x + 1)(\cos x + 1) = 0$

A. 30°, 150°, 180°
B. 180°, 225°, 315°
C. 120°, 180°, 240°
D. 120°, 180°, 315°

_____2. Using the domain of $(0°, 360°]$, solve $2 \cos x = \sqrt{3}$

A. 30°, 150°
B. 60°, 120°
C. 120°, 150°
D. 30°, 330°

Figure 1

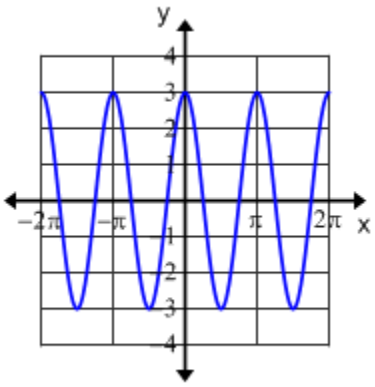


Figure 2

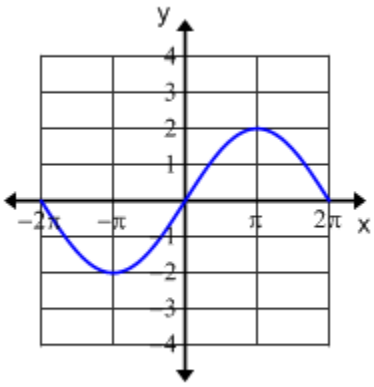
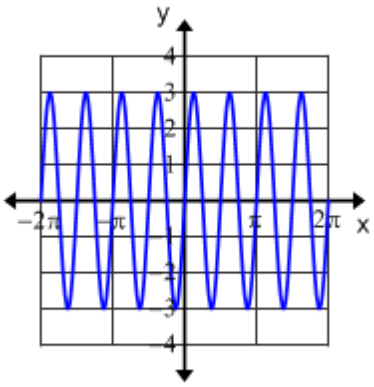


Figure 3



_____3. What equation is graphed in figure 1 above?

A. $y = 2 \cos x$
B. $y = 3 \cos (10x)$
C. $y = 3 \cos(2x)$
D. $y = 4 \cos x$

_____4. What equation is graphed in figure 2 above?

A. $y = 2 \sin x$
B. $y = 2 \sin (2x)$
C. $y = 2 \sin (\frac{1}{2} x)$
D. $y = 2 \sin (\frac{1}{4} x)$

_____5. What equation is graphed in figure 3 above?

A. $y = 3 \sin (3x)$
B. $y = 3 \sin (4x)$
C. $y = 3 \sin (\frac{1}{2} x)$
D. $y = 3 \sin (8x)$

_____6. What is the horizontal asymptote of $y = \dfrac{3x^5 + 2}{4x^2 + 2x + 1}$?

A. None exist
B. $y = 0$
C. $y = \dfrac{3}{4}$
D. $y = 3$

_____7. What is the derivative of $f(x) = 2x^6 + 4x^2 - 3x + 3$?

A. $12x^7 + 8x^3 - 3x^2 + 3x$
B. $12x^5 + 4x - 3$
C. $12x^5 + 8x - 3$
D. None of the above

_____8. What is the derivative of $f(x) = 5x^{-4} + x^{-2}$

A. $-20x^{-3} - 2x^{-3}$
B. $-20x^{-5} - 2x^{-3}$
C. $-20x^{-5} - 2x^{-1}$
D. $-20x^{-3} - 2x^{-1}$

_____9. What is the derivative of f(x) = $\frac{5}{x^6}+\frac{3}{x^2}$

A. $\frac{30}{x^7}+\frac{6}{x^3}$ B. $\frac{-30}{x^5}-\frac{6}{x^3}$ C. $\frac{-30}{x^5}-\frac{6}{x^2}$ D. $\frac{-30}{x^7}-\frac{6}{x^3}$

_____10. Solve for x: $\log_5 \frac{1}{5} = x$

A. 1 B. -1 C. $\frac{1}{3}$ D. $\frac{1}{2}$

_____11. Evaluate $\log_2 64$

A. 5 B. -5 C. 6 D. 7

_____12. Solve for x: $\log_3 x = 5$

A. -2 B. 125 C. 243 D. 1056

_____13. What is $\frac{2\pi}{15}$ radians in degree measurement?

A. 10° B. 24° C. 36° D. 44°

_____14. What is $\frac{\pi}{5}$ radians in degree measurement?

A. 108° B. 36° C. 24° D. 98°

_____15. On a unit circle what point is associated with $\frac{\pi}{3}$?

A. $\left(\frac{\sqrt{3}}{2},\frac{1}{2}\right)$ B. $\left(\frac{1}{2},\frac{\sqrt{3}}{2}\right)$ C. $\left(\frac{\sqrt{2}}{2},\frac{\sqrt{2}}{2}\right)$ D. (0, 1)

_____16. On a unit circle what point is associated with $\frac{\pi}{4}$?

A. $\left(\frac{\sqrt{3}}{2},\frac{1}{2}\right)$ B. $\left(\frac{1}{2},\frac{\sqrt{3}}{2}\right)$ C. $\left(\frac{\sqrt{2}}{2},\frac{\sqrt{2}}{2}\right)$ D. (0, 1)

_____17. What is $\frac{4\pi}{5}$ radians in degree measurement?

A. 134° B. 144° C. 146° D. 156°

_____18. What is $\frac{\pi}{18}$ radians in degree measurement?

A. 8° B. 10° C. 12° D. 18°

_____19. On a unit circle what point is associated with $\frac{\pi}{3}$?

A. $\left(\frac{\sqrt{3}}{2},\frac{1}{2}\right)$ B. $\left(\frac{1}{2},\frac{\sqrt{3}}{2}\right)$ C. $\left(\frac{\sqrt{2}}{2},\frac{\sqrt{2}}{2}\right)$ D. (0, 1)

Figure 1

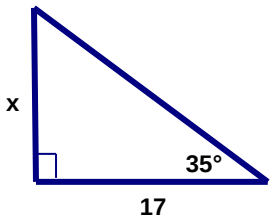


Figure 2

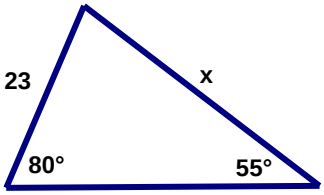


Figure 3

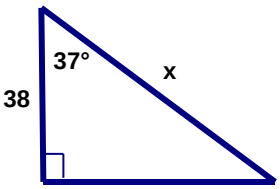


Figure 4

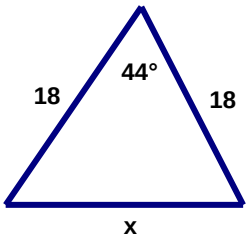


Figure 5

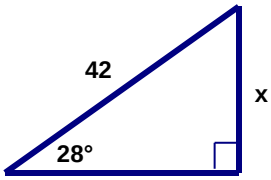


Figure 6

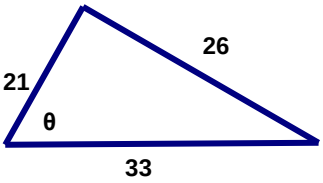


Figure 7

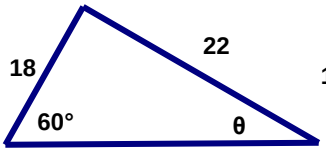
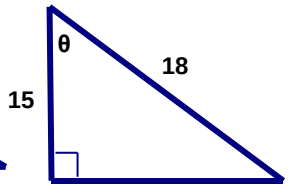


Figure 8



_____20. Rounded to the nearest whole number, what is x in Figure 1 above?
A. 10 B. 12 C. 15 D. 18

_____21. Rounded to the nearest whole number, what is x in Figure 2 above?
A. 28 B. 32 C. 36 D. 42

_____22. Rounded to the nearest whole number, what is x in Figure 3 above?
A. 24 B. 48 C. 54 D. 64

_____23. Rounded to the nearest whole number, what is x in Figure 4 above?
A. 10 B. 12 C. 13 D. 17

_____24. Rounded to the nearest whole number, what is x in Figure 5 above?
A. 16 B. 18 C. 20 D. 24

_____25. Rounded to the nearest whole number, what is θ in Figure 6 above?
A. 24° B. 32° C. 36° D. 52°

_____26. Rounded to the nearest whole number, what is θ in Figure 7 above?
A. 45° B. 49° C. 54° D. 56°

_____27. Rounded to the nearest whole number, what is θ in Figure 8 above?
A. 21° B. 23° C. 26° D. 34°

_____28.. On a unit circle what point is associated with $\frac{3\pi}{2}$?
A. (1, 0) B. (-1, 0) C. (0, -1) D. (0, 1)

_____29. On a unit circle what point is associated with $180°$?
A. (1, 0) B. (-1, 0) C. (0, -1) D. (0, 1)

_____30. What is 18° in radians.

A. $\frac{\pi}{5}$ B. $\frac{\pi}{10}$ C. $\frac{\pi}{20}$ D. $\frac{\pi}{30}$

_____31. What is 40° in radians.

A. $\frac{\pi}{7}$ B. $\frac{2\pi}{9}$ C. $\frac{\pi}{11}$ D. $\frac{\pi}{12}$

_____32. What is 15° in radians.

A. $\frac{\pi}{7}$ B. $\frac{2\pi}{9}$ C. $\frac{\pi}{11}$ D. $\frac{\pi}{12}$

_____33. In which quadrant is $\frac{2\pi}{3}$?

A. I B. II C. III D. IV

_____34. In which quadrant is $\frac{4\pi}{3}$?

A. I B. II C. III D. IV

_____35. In which quadrant is $-\frac{11\pi}{6}$?

A. I B. II C. III D. IV

_____36. When sin $\theta = \frac{8}{17}$ and the terminal side of θ is in the 1st quadrant, what is the tan θ?

A. $\frac{8}{15}$ B. $\frac{15}{17}$ C. $\frac{17}{15}$ D. $\frac{17}{15}$

_____37. When tan $\theta = \frac{4}{3}$ and the terminal side of θ is in the 1st quadrant, what is the cos θ?

A. $\frac{3}{4}$ B. $\frac{4}{5}$ C. $\frac{3}{5}$ D. $\frac{1}{5}$

_____38. What is the vertical asymptote of $y = \frac{2x^3+5}{x+4}$?

A. x = 4 B. x= -4 C. x = 2 D. No vertical asymptote

_____39. In the equation $y = 8\sin(3\theta + 60°)$, what is the amplitude?

A. 8 B. 20° C. 60° D. 120°

_____40. In the equation $y = 8\sin(3\theta + 60°)$, what is the period?

A. 8 B. 20° C. 60° D. 120°

_____41. In the equation $y = 8\sin(3\theta + 60°)$, what is the phase shift?

A. -8 B. -20° C. -60° D. -120°

_____42. If $\sin\alpha = \frac{8}{17}$ and $\tan\beta = \frac{3}{4}$, what is $\cos(\alpha+\beta)$

A. $\frac{32}{85}$ B. $\frac{36}{85}$ C. $\frac{48}{85}$ D. $\frac{68}{85}$

_____43. If $\sin\alpha = \frac{5}{13}$ and $\tan\beta = \frac{7}{24}$, what is $\sin(\alpha-\beta)$

A. $\frac{32}{325}$ B. $\frac{36}{325}$ C. $\frac{48}{325}$ D. $\frac{-68}{325}$

_____44. Simplified sin x cot x is

A. tan x B. 1 C. sin x D. cos x

_____45. Simplified $\frac{\tan x \bullet \cos x}{\sin x}$ is

A. tan x B. 1 C. sin x D. cos x

_____46. Simplify: $\cot\Theta \bullet \cos\Theta \bullet \sin\Theta$

A. $\tan\Theta$ B. 1 C. $\sin^2\Theta$ D. $\cos^2\Theta$

_____47. Simplify: $\tan\Theta \bullet \sec\Theta \bullet \sin\Theta$

A. $\tan^2\Theta$ B. 1 C. $\sin^2\Theta$ D. $\cos^2\Theta$

_____48. Simplify: $\frac{\cos\theta \bullet \csc\theta}{\tan\theta}$

A. $\tan^2\Theta$ B. $\cot^2\Theta$ C. $\sin^2\Theta$ D. $\cos^2\Theta$

_____49. Given that $\sin\theta = \frac{\sqrt{3}}{3}$ and that θ is in the first quadrant, find cos 2θ.

A. 1 B. -1 C. $\frac{7}{25}$ D. $\frac{1}{3}$

_____50. Given that $\tan\theta = \frac{3}{4}$ and that θ is in the first quadrant, find sin 2θ.

A. $\frac{24}{25}$ B. $\frac{7}{25}$ C. $-\frac{9}{25}$ D. $-\frac{11}{25}$

_____51. Using the domain of $(0°, 360°]$, solve $2\sin x = 1$

A. 30°, 150° B. 60°, 300° C. 225°, 315° D. 180°, 360°

_____52. Solve for x: $\log_2 \frac{1}{8} = x$

A. 3 B. -3 C. ½ D. None of the above

_____53. Solve for x: $\log_2 \frac{x+1}{3} = 5$

A. 93 B. 94 C. 95 D. 96