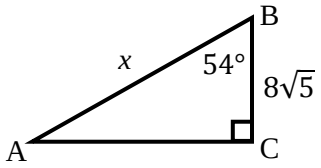
Math 3 Unit 8
Review Worksheet
**** Scientific calculator <u>not</u> allowed ****

Name:_____
Date:_____ **Per:**_____

[1-8]: A) Use right-triangle trigonometry to write a valid equation that will allow you to solve for *x*. B) Solve for *x* without a calculator.

1.



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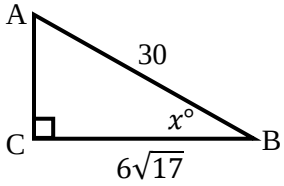

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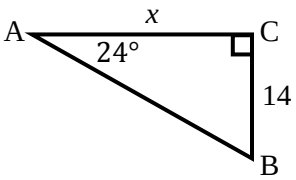

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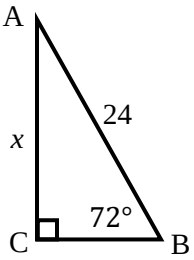

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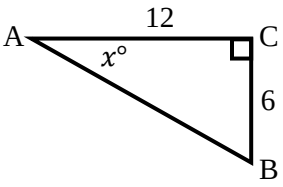

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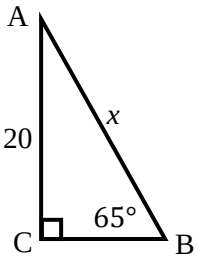

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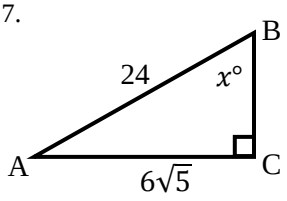

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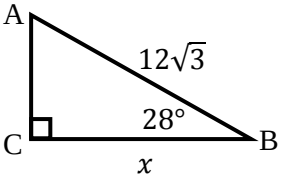
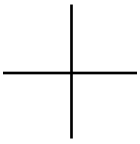


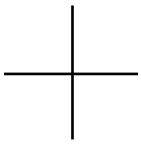
[9-20]: A) Sketch each angle in standard position. B) Identify the quadrant for the terminating ray. C) Find the reference angle, θ'.

9. $\theta = 320°$



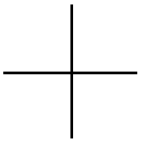
b) Quadrant _____
c) $Ref\angle\theta' =$ _____

10. $\theta = 165°$



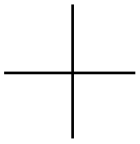
b) Quadrant _____
c) $Ref\angle\theta' =$ _____

11. $\theta = \frac{17\pi}{12}$



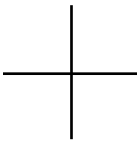
b) Quadrant _____
c) $Ref\angle\theta' =$ _____

12. $\theta = \frac{13\pi}{5}$



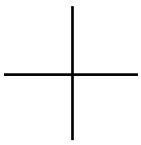
b) Quadrant _____
c) $Ref\angle\theta' =$ _____

13. $\theta = 128°$



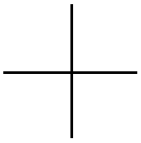
b) Quadrant _____
c) $Ref\angle\theta' =$ _____

14. $\theta = 336°$



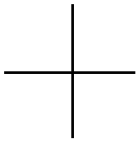
b) Quadrant _____
c) $Ref\angle\theta' =$ _____

15. $\theta = \frac{7\pi}{9}$



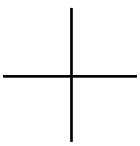
b) Quadrant _____
c) $Ref\angle\theta' =$ _____

16. $\theta = \frac{8\pi}{5}$



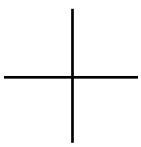
b) Quadrant _____
c) $Ref\angle\theta' =$ _____

17. $\theta = -400°$



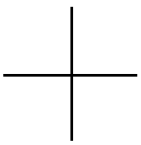
b) Quadrant _____
c) $Ref\angle\theta' =$ _____

18. $\theta = -170°$



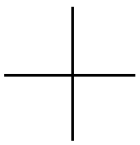
b) Quadrant _____
c) $Ref\angle\theta' =$ _____

19. $\theta = -\frac{11\pi}{8}$



b) Quadrant _____
c) $Ref\angle\theta' =$ _____

20. $\theta = -\frac{14\pi}{9}$



b) Quadrant _____
c) $Ref\angle\theta' =$ _____

[21-32]: A) Convert each angle from degrees to radian measure or radians to degrees, whichever is appropriate. B) Find one positive coterminal angle <u>and</u> one negative coterminal angle for each original θ.

21. $\theta = 220°$ 22. $\theta = 65°$ 23. $\theta = \frac{7\pi}{12}$ 24. $\theta = \frac{11\pi}{5}$ 25. $\theta = 108°$ 26. $\theta = 36°$

a) _____ b) $Pos\angle =$ _____ c) $Neg\angle =$ _____

27. $\theta = \frac{8\pi}{3}$ 28. $\theta = \frac{7\pi}{2}$ 29. $\theta = -450°$ 30. $\theta = -130°$ 31. $\theta = -\frac{3\pi}{8}$ 32. $\theta = -5\pi$

a) _____ b) $Pos\angle =$ _____ c) $Neg\angle =$ _____

[33-44]: A) Sketch the reference angle for each in the correct quadrant. B) Find $\sin\theta$, $\cos\theta$, & $\tan\theta$.

33. $\theta = \frac{4\pi}{3}$ 34. $\theta = \frac{5\pi}{6}$ 35. $\theta = -\frac{7\pi}{4}$ 36. $\theta = -\frac{\pi}{6}$

37. $\theta = \frac{8\pi}{3}$ 38. $\theta = \frac{13\pi}{4}$ 39. $\theta = -\frac{5\pi}{4}$ 40. $\theta = -\frac{7\pi}{3}$

41. $\theta = -\frac{11\pi}{6}$ 42. $\theta = -\frac{2\pi}{3}$ 43. $\theta = \frac{7\pi}{4}$ 44. $\theta = \frac{7\pi}{6}$

b) $\sin\theta =$ _____ $\cos\theta =$ _____ $\tan\theta =$ _____

[45-50]: A) Sketch each angle. B) Find $\sin\theta$, $\cos\theta$, & $\tan\theta$.

45. $\theta = 4\pi$ 46. $\theta = -3\pi$ 47. $\theta = -\frac{5\pi}{2}$

48. $\theta = -\frac{3\pi}{2}$ 49. $\theta = 5\pi$ 50. $\theta = \frac{7\pi}{2}$

b) sin _____ = _____ cos _____ = _____ tan _____ = _____

[51-18]: Solve each of the following equations for θ such that $0 \leq \theta < 2\pi$.

51. $12\cos\theta - 6\sqrt{3} = 0$

52. $\sqrt{2}\tan\theta + \sqrt{6} = 0$

53. $4\sqrt{3}\sin\theta + 6 = 0$

54. $8\sin\theta - 4\sqrt{2} = 0$

55. $18\tan^2\theta - 6 = 0$

56. $24\sin^2\theta - 6 = 0$

57. $12\cos^2\theta - 9 = 0$

58. $3\tan^2\theta - 3 = 0$

59. $2\tan\theta\,(\cos\theta + 1) = 0$

60. $4\cos\theta\left(\tan\theta + \sqrt{3}\right) = 0$

61. $\left(2\sin\theta + \sqrt{3}\right)(\tan\theta - 1) = 0$

62. $\left(2\cos\theta - \sqrt{3}\right)(2\cos\theta + 1) = 0$

63. $6\tan\theta\sin\theta - 2\sqrt{3}\sin\theta = 0$

64. $4\tan\theta\cos\theta + 4\sqrt{3}\cos\theta = 0$

65. $2\,cos^2\theta + \cos\theta - 1 = 0$

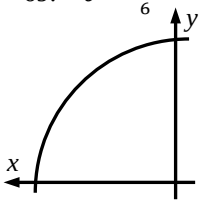
66. $2\sin^2\theta - 3\sin\theta + 1 = 0$

67. $2\sin^2\theta - \sin\theta - 1 = 0$

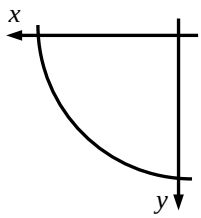
68. $2\cos^2\theta - 3\cos\theta + 1 = 0$

[69-34]: Find the ordered pair on the unit circle for each angle.

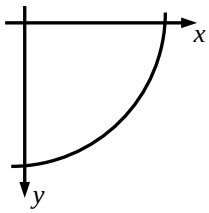
69. $\theta = \frac{5\pi}{6}$



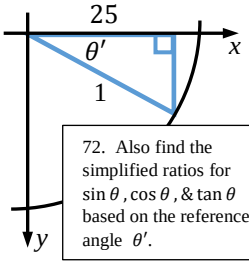
70. $\theta = \frac{4\pi}{3}$



71. $\theta = \frac{7\pi}{4}$



72.



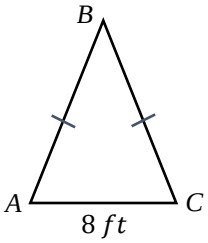
72. Also find the simplified ratios for $\sin\theta$, $\cos\theta$, & $\tan\theta$ based on the reference angle θ'.

$\sin\theta =$ _____

$\cos\theta =$ _____

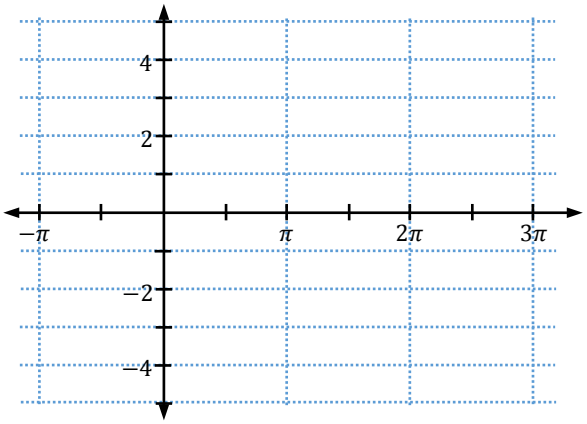
$\tan\theta =$ _____

73. If $\cos A = \frac{2}{5}$, then find the perimeter and area for ΔABC.

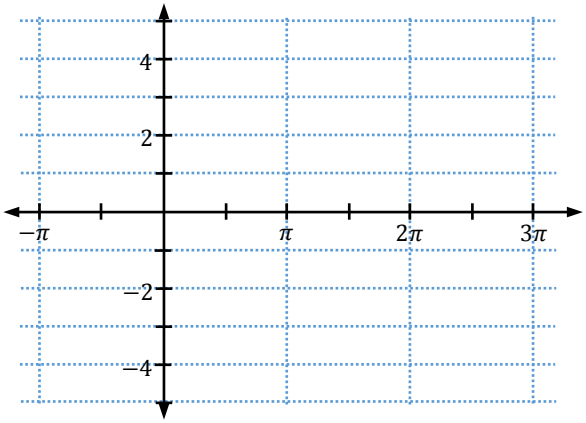


[74-77]: Focus on the five key points for a trig function {beginning, middle, end, 1/4th, & 3/4th} to sketch the first period for each of the following functions in one color.

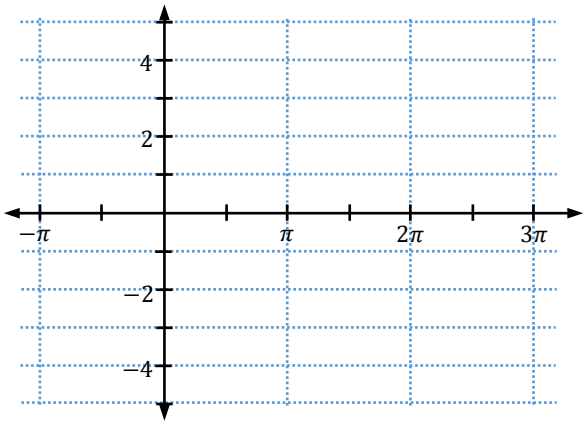
74. $f(x) = 2\cos\left(x + \frac{\pi}{2}\right) + 1$



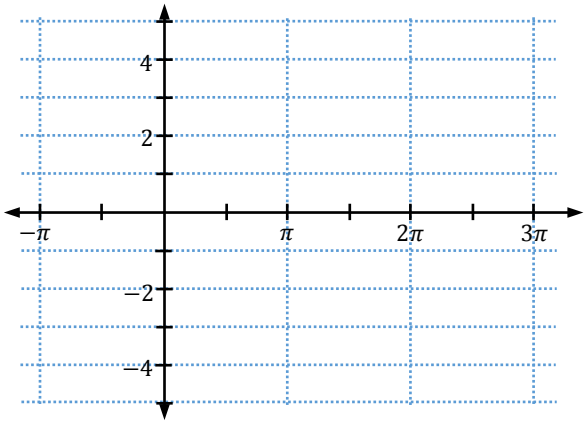
75. $f(x) = -3\sin(x - \pi) + 2$



76. $f(x) = \frac{5}{2}\sin\left(x + \frac{\pi}{2}\right) - 1$

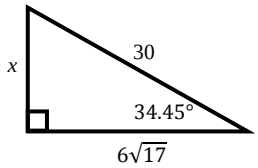


77. $f(x) = -\frac{1}{2}\cos\left(x - \frac{\pi}{2}\right) - 2$



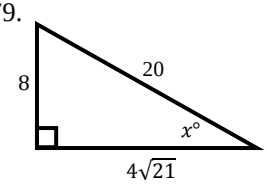
[78-79] Multiple Choice: Choose the one equation that will not accurately solve for x.

78.



A) $\cos 55.55° = \frac{x}{30}$
B) $\left(6\sqrt{17}\right)^2 + x^2 = 900$
C) $\sin 34.45° = \frac{x}{30}$
D) $x^2 = 30^2 - 36 \cdot 17$
E) $\tan 55.55° = \frac{x}{6\sqrt{17}}$

79.



A) $\cos x = \frac{\sqrt{21}}{5}$
B) $x = \arctan\left(\frac{2\sqrt{21}}{21}\right)$
C) $\cos(90 - x) = \frac{2}{5}$
D) $\arcsin(2.5) = x$
E) $\sin^{-1}(0.4) = x$