Trigonometry Final Review

1. Convert $7.254°$ to degrees, minutes, and seconds.

2. What is the complement of $\frac{\pi}{4}$?

3. Write an equation for all the coterminal angles for $143°$.

4. Find the least positive coterminal angle for $826°$.

5. What is the third angle for the triangle if the first 2 are $25°$ and $45°$?

6. What is the degree measure in degrees, minutes, and seconds of the following angle?

40% of the circle
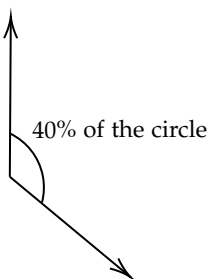
7. The following triangles are similar triangles. Find "?"

3   4.5   Similar   6   ?

7   14
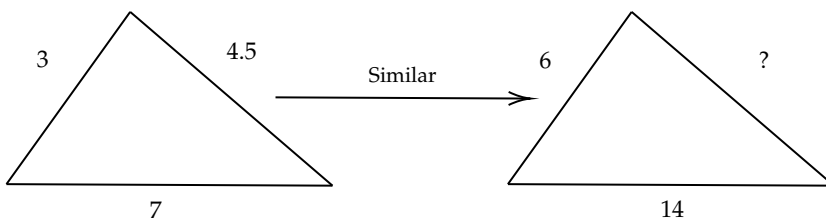
8. Suppose that θ is in the standard position and the point on the terminal side is $(10, 5)$. Find $\sin(\theta)$

9. Note that $\tan(\theta) > 0$ and $\csc(\theta) < 0$. What Quadrant is θ in?

10. Find $\csc(\theta)$ if $\cos(\theta) = \frac{8}{10}$ and θ is in Quadrant 3. (Do not round, give the exact answer.)

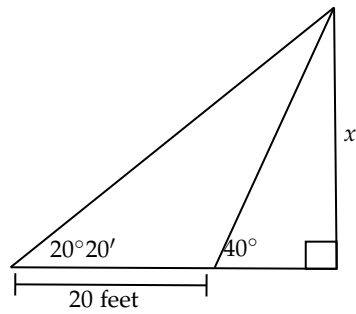11. Given the following triangle, find $\tan(A)$.

125   20

A
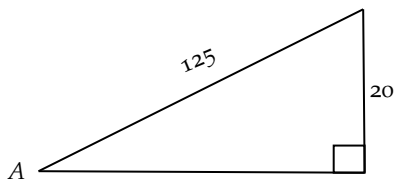
12. Find all θ in $[0°, 360°)$ where $\cos(\theta) = -\frac{\sqrt{2}}{2}$.

13. If r is positive and the point (x, y) is in Quadrant 4, is $\frac{x}{y}$ positive or negative?

14. Given the diagram below, how far are you from the flag pole?

60 ft

Flag pole is 20 ft tall

You are here
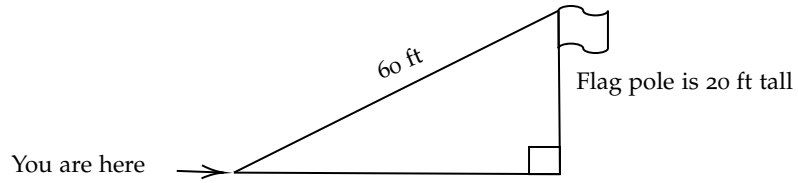
15. If $\theta = 0.000001°$, use the following diagram to find x.

θ

1 foot

x
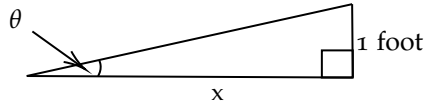
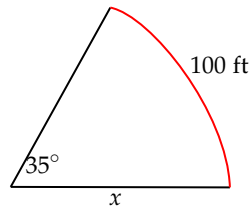16. Use the diagram to find x.

x

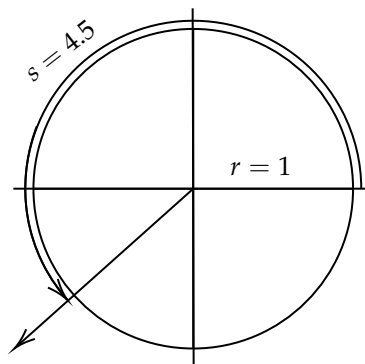$20°20'$ $40°$

20 feet

17. Convert $1215°$ to radians.

18. Convert $\frac{12\pi}{5}$ to degrees.

19. Find $\sec(B)$ when $a = 2$, $b = 9$, and $C = 90°$.

20. Find the length of x in regards to the following diagram.

100 ft

$35°$

x

21. Find the point (x, y) with the following diagram.


$s = 4.5$

$r = 1$

22. Find x on the interval $[0, \frac{\pi}{2}]$ when $\csc(x) = 3.45$.

23. Find the period and amplitude of $y = 4\cos(3x)$.

24. Find the vertical translation of $y = \cos(\frac{x}{2} - 4) + 7$.

25. You are on a Ferris wheel with a radius of 75 feet. If it is spinning at 3 radi per minute, what is your vertical distance above the horizontal axis when you have been riding the Ferris wheel for 12 minutes?

26. What does the value of $\sin(\theta)$ tell you?

27. Find the exact value of $\cot(\frac{5\pi}{6})$.

28. Find the exact values of s where $\cos(s) = \frac{-1}{2}$ and when $0 \leq s \leq 2\pi$.

29. Find $\sin(\theta)$ if $\tan(\theta) = \frac{-2}{3}$ and θ is in Quadrant 2.

30. Simplify $\cot(\theta) * (\sin(\theta) - \tan(\theta))$.

31. Simplify $\frac{\sec(x)*\cot(x)}{\csc(x)}$.

32. Simplify $\frac{\cot(x)}{\csc(x)*\sec(x)}$.

33. Find the exact value of $\sin(15°)$.

34. Find the exact value of $\tan(105°)$.

35. Find $\sin(2\theta)$, given $\sin(\theta) = \frac{2}{5}$ and $\cos(\theta) < 0$.

36. Find $\cos(2\theta)$, given $\tan(\theta) = \frac{7}{24}$ and $\sin(\theta) < 0$.

37. Find θ where $\theta = \sec^{-1}(-\sqrt{2})$.

38. Solve for y where $y = \arccos(\frac{-\sqrt{3}}{2})$.

39. Find $0 \leq \theta \leq 360°$ if $\sin(\theta) = . - 76$ in degrees and radians. Approximate your answer.

40. Evaluate $\sin(\arctan(2))$.

41. Evaluate $\tan(\arctan(4))$.

42. Find θ on the interval $[0, 360°)$ where $3\tan(\theta) + 12 = 30$.

43. How many triangles are possible using $b = 42$, $c = 52$, and $B = 105°$.

44. Find the unknown sides and angles of the triangle.
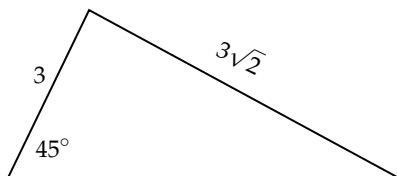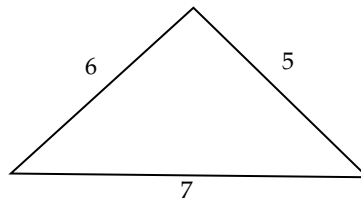

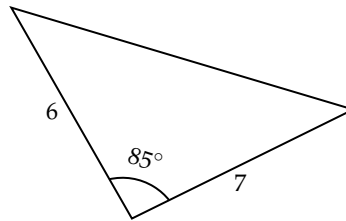45. Find the unknown sides and angles of the triangle.
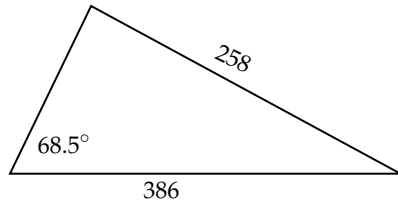
46. Find the unknown sides and angles of the triangle.
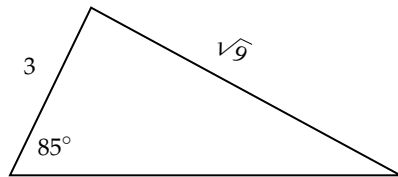
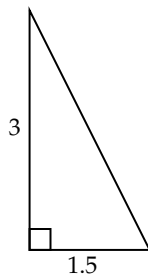47. Find all the angles of the following triangle

48. Find the unknown sides and angles of the triangle.

49. Find the area of the following triangles:

(a)

(b) $a = 12$ m, $b = 16$ m, and $c = 25$ m.

(c) $A = 42.5°$, $b = 13.6$ m, and $c = 10.1$ m

50. Find $0 \leq \theta < 2\pi$ (Find the answer in degrees then convert your answer into radians.)

(a) $\sin \theta = -.45$

(b) $\cos \theta = .62$