Chapter 13 Review Worksheet

Name: _____

NO CALCULATOR, NO UNIT CIRCLE

Evaluate the trigonometric function. Give an exact answer.

1.) $\csc \dfrac{\pi}{6}$

2.) $\sec \dfrac{\pi}{3}$

3.) $\cos \dfrac{\pi}{4}$

4.) $\sin \dfrac{\pi}{3}$

5.) $\cot \dfrac{\pi}{4}$

6.) $\tan \dfrac{\pi}{6}$

Evaluate the six trigonometric functions of θ.

7.) $\theta = 360°$

8.) $\theta = -\dfrac{3\pi}{2}$

NO CALCULATOR, MAY USE UNIT CIRCLE

Evaluate the function without using a calculator (i.e. ALL ANSWERS SHOULD BE EXACT, NO DECIMALS).

9.) $\tan 330°$

10.) $\csc (-405°)$

11.) $\tan 150°$

12.) $\sec (-480°)$

13.) $\sin \dfrac{13\pi}{6}$

14.) $\sec \dfrac{11\pi}{3}$

15.) $\cos^{-1} 1$

16.) $\tan^{-1} \sqrt{3}$

17.) $\sin^{-1} \left(-\frac{\sqrt{2}}{2}\right)$

18.) $\cos^{-1} \left(-\frac{\sqrt{3}}{2}\right)$

19.) $\sin^{-1} 0$

20.) $\cos^{-1} 3$

21.) $\tan^{-1} 1$

22.) $\sin^{-1} \left(-\frac{1}{2}\right)$

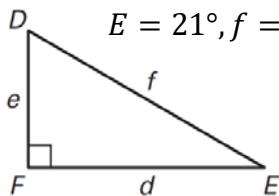**MAY USE CALCULATOR, MAY USE UNIT CIRCLE AND FORMULAS**

23.) In $\triangle ABC$, $a = 4, b = 5,$ and $C = 90°$. Evaluate the six trigonometric functions of angle B.

Let θ be an acute angle of a right triangle. Find the values of the other five trigonometric fucntions of θ.
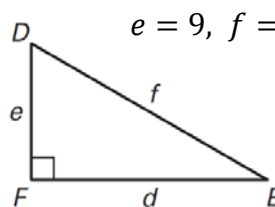
24.) $\sec \theta = 2$

Solve $\triangle ABC$ using the diagram and the given measurements. Round answers to the nearest tenth, when necessary.

25.) D $E = 21°, f = 8$

26.) D $e = 9, \ f = 17$

27.) You are standing 50 meters from a hot air balloon that is preparing to take off. The angle of elevation to the top of the balloon is 28°. Find the height of the balloon.
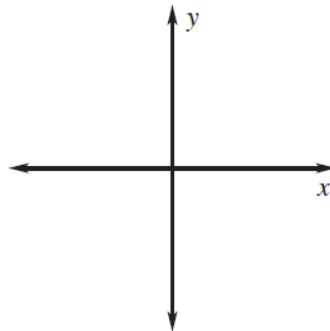
28.) You use a 12 foot ramp to load items into a van. If the floor of the van is 4 feet off the ground, what is the angle of elevation of the ramp?

Sketch the angle. Then find its reference angle. Answer in the unit of the given angle.
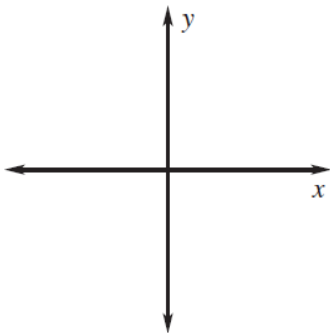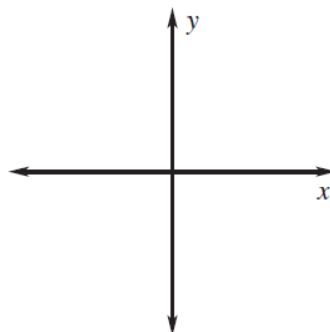
29.) 250°
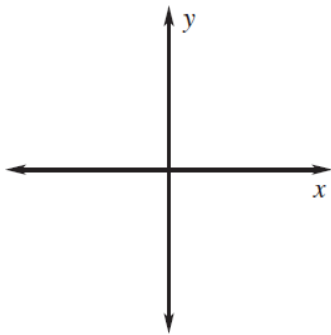
30.) $-30°$

31.) $\dfrac{8\pi}{3}$

32.) $-\dfrac{11\pi}{6}$

Find one positive angle and one negative angle that are coterminal with the given angle.

33.) $155°$

34.) $-325°$

35.) $\dfrac{11\pi}{5}$

36.) $\dfrac{15\pi}{7}$

Convert the degree measure to radians or the radian measure to degrees.

37.) $145°$

38.) $-80°$

39.) $\dfrac{4\pi}{9}$

40.) $-\dfrac{17\pi}{10}$

Use your calculator to evaluate the trigonometric functions. Round your answers to the nearest <u>tenth</u>.

41.) $\cot 215°$

42.) $\cos \dfrac{\pi}{8}$

43.) $\sec \dfrac{\pi}{10}$

Find the arc length and area of a sector with the given radius *r* and central angle θ. Round answers to the nearest <u>hundredth</u>.

44.) $r = 5$ ft, $\theta = 90°$

45.) $r = 2$ in., $\theta = 300°$

Use the given point on the terminal side of an angle θ in standard position to evaluate the six trigonometric functions of θ.

46.) $(-9, 12)$

47.) You and a friend are driving golf balls at a driving range. Your drive has an angle of elevation of 37° with an initial velocity of 140 feet per second. Your friend's drive has an angle of elevation of 45° and an initial velocity of 135 feet per second. Which ball travels the farthest and by how much?

Solve the equation for θ.

48.) $\sin \theta = 0.27;\ 90° < \theta < 180°$

49.) $\tan \theta = 0.42;\ 180° < \theta < 270°$

50.) $\tan \theta = -2.5;\ 270° < \theta < 360°$

51.) $\cos \theta = -0.65;\ 180° < \theta < 270°$

Solve $\triangle ABC$. Round answers to the nearest <u>tenth</u>.

52.) $A = 34°,\ a = 6,\ b = 7$

53.) $a = 16,\ b = 23,\ c = 17$

54.) $A = 50°,\ C = 65°,\ b = 60$

55.) $B = 63°,\ a = 11,\ b = 8$

56.) $C = 50°$, $a = 12$, $b = 14$

57.) $B = 86°$, $b = 13$, $c = 11$

**Find the area of $\triangle ABC$. Round answers to the nearest tenth.**

58.) $A = 81°$, $b = 16$, $c = 18$

59.) $a = 8$, $b = 6$, $c = 7$

60.) $C = 111°$, $a = 7$, $b = 13$

61.) $a = 16$, $b = 33$, $c = 24$

62.) To measure the width of a river, you plant a stake at point A on one side of the riverbank, directly across from a tree stump at point B on the other side of the riverbank. From point A, you walk 80 meters along the riverbank to point C. You find the measure of angle C to be 39°. What is the width w of the river?
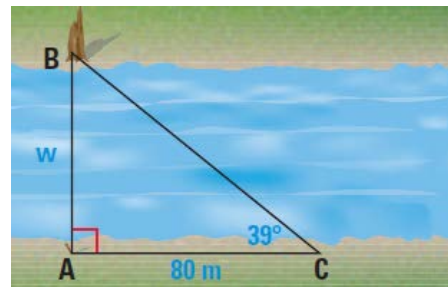
63.) A crane has a 200 foot arm with a lower end that is 5 feet off the ground. The arm has to reach to the top of a building that is 160 feet high. At what angle θ should the arm be set?

Graph <u>one period</u> of the function. Identify its domain, range, amplitude, period, and x-/y-intercepts.
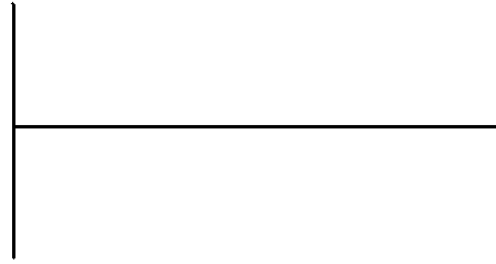
64.) $y = 4 \sin 2x$
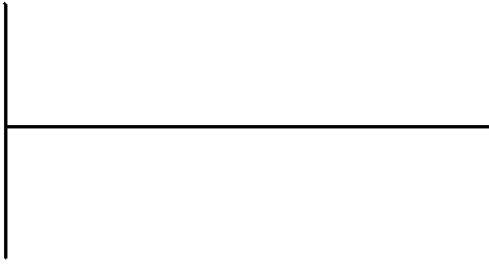
65.) $y = 5 \cos \frac{1}{4}\pi x$

domain: range:

amplitude: period:

x-int: y-int:

domain: range:
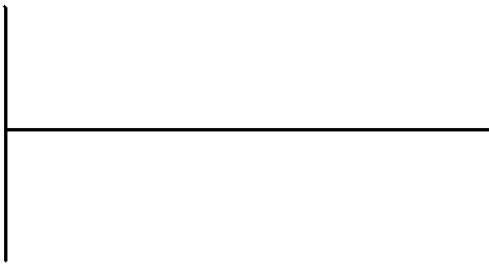
amplitude: period:

x-int: y-int:

66.) $y = 3 \cos \frac{2}{3}x$
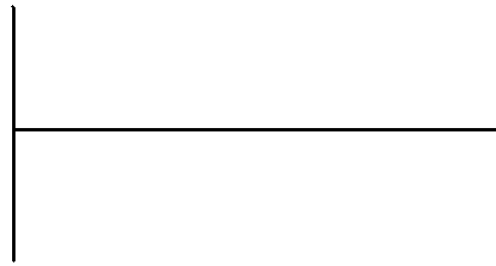
67.) $y = 2 \sin 8x$

domain: range:
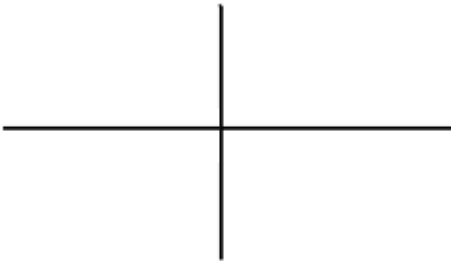
amplitude: period:

x-int: y-int:

domain: range:

amplitude: period:

x-int: y-int:

68.) $y = 2 \tan 2x$

69.) $y = 3 \tan \frac{1}{3}\pi x$

domain: range:

asymptotes: period:

x-int: y-int:
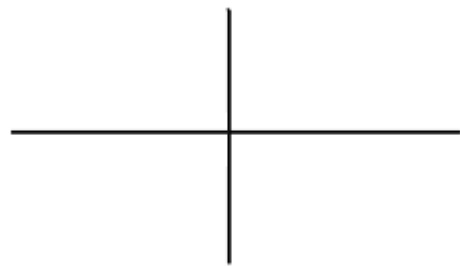
domain: range:

asymptotes: period:

x-int: y-int: