Do you know HOW?
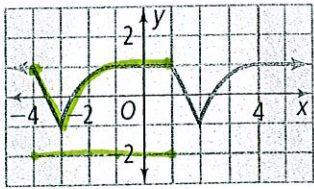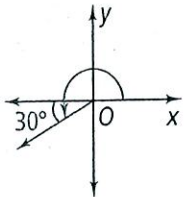
1. Find the period and amplitude of the periodic function.

2. Find the measure of the angle in standard position.

Sketch each angle in standard position.

3. $-150°$

4. $240°$

Write each measure in radians. Express the answer in terms of π and as a decimal rounded to the nearest hundredth.

5. $-180°$

6. $36°$

Write each measure in degrees. Round your answer to the nearest degree if necessary.

7. $\frac{2}{3}\pi$ radians

8. $-\frac{7}{6}\pi$ radians

9. 0.5 radians

10. -2 radians

The measure θ of an angle in standard position is given. Find the exact values of $\cos\theta$ and $\sin\theta$ for each angle measure.

11. $-225°$

12. $120°$

13. $-\frac{4\pi}{3}$ radians

14. $\frac{5\pi}{4}$ radians

15. Find the length of the intercepted arc to the nearest tenth for an arc with a central angle of measure $\theta = \frac{\pi}{3}$ on a circle of radius $r = 10$.

16. Sketch one cycle of a sine function with amplitude 3 and period 2.

17. Find the amplitude and period of the graph of $y = \frac{1}{4}\sin 3\theta$.

Do you UNDERSTAND?

18. **Open-Ended** Sketch the graph of a periodic function with a period of 10 and an amplitude of 7.

19. **Writing** You are given an angle with a positive angle measure in degrees. Describe how you can find an angle coterminal with that angle that also has a positive angle measure in degrees.

20. **Reasoning** On a merry-go-round, you stand 15 feet from the center while your friend stands 10 feet from the center. How would you find how much further you travel in one revolution than your friend? What is that distance?

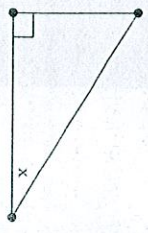21. **Reasoning** Will two sine functions with the same period but different amplitudes intersect? Explain.

Trigonometry – Worksheet 1

1. Find the *exact* value of the six trigonometric functions of the given $\angle x$.
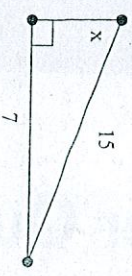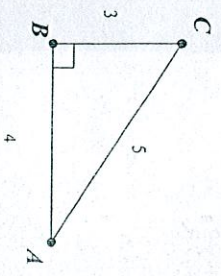

    $\sin x =$

    $\cos x =$

    $\tan x =$

    $\csc x =$

    $\sec x =$

    $\cot x =$

2. Let x be an acute angle of a right triangle. Find the values of the other 5 trigonometric functions of x, if $\sec x = \dfrac{13}{5}$.

    $\sin x =$ $\csc x =$

    $\cos x =$ $\sec x =$

    $\tan x =$ $\cot x =$

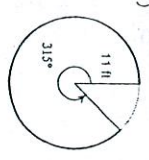3. Given right $\triangle ABC$ below, find the EXACT value of:

    a. $\cos C =$

    b. $\csc C =$

    c. $\tan A =$
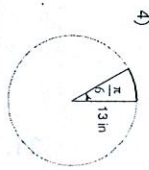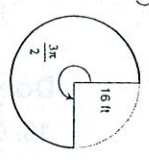
    d. $\sec A =$

Kuta Software - Infinite Algebra 2

Name_____

Date_____ Period____

Arc Length and Sector Area

Find the length of each arc. Round your answers to the nearest tenth.

1)

2)

3)

4)
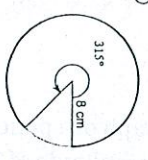

5) $r = 18$ cm, $\theta = 60°$

6) $r = 16$ m, $\theta = 75°$

7) $r = 9$ ft, $\theta = \dfrac{7\pi}{4}$

8) $r = 14$ ft, $\theta = \dfrac{19\pi}{12}$
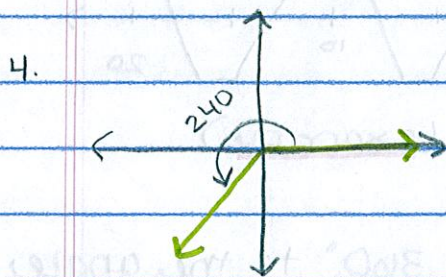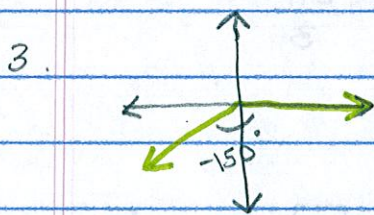
Find the length of each arc. Do not round.

9)

10)

11)

12)

-1-
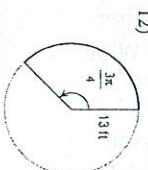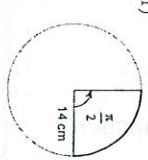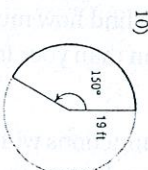
Mid-Chapter Quiz Review

1. amp: $\dfrac{1-(-1)}{2} = \dfrac{1+1}{2} \cdot \dfrac{2}{2} = \boxed{1}$

   period : $\boxed{5}$

2. $120 + 30° = \boxed{210°}$

3.

4.

5. $-180° \cdot \dfrac{\pi}{180} = \boxed{-\pi \text{ radians}}$

6. $36° \cdot \dfrac{\pi}{180} = \dfrac{36\pi}{180} = \boxed{\dfrac{\pi}{5} \text{ radians}}$

7. $\dfrac{2\pi}{3} \cdot \dfrac{180°}{\pi} = \dfrac{360}{3} = \boxed{120°}$

8. $\dfrac{-7\pi}{6} \cdot \dfrac{180°}{\pi} = \boxed{-210°}$

9. $0.5 \cdot \dfrac{180}{\pi} = \dfrac{90}{\pi} = \boxed{28.7°}$

10. $-2 \cdot \dfrac{180}{\pi} = \dfrac{-360}{\pi} = \boxed{-114.6°}$

11. $-225° + 360 = 135°$

$\cos\theta = -\sqrt{2}/2$

$\sin\theta = \sqrt{2}/2$

12. $120°$ $\cos\theta = -1/2$

$\sin\theta = \sqrt{3}/2$

13. $\dfrac{-4\pi}{3} + 2\pi = \dfrac{2\pi}{3}$

$\cos\theta = -1/2$

$\sin\theta = \sqrt{3}/2$

14. $\dfrac{5\pi}{4}$ $\cos\theta = -\sqrt{2}/2$

$\sin\theta = -\sqrt{2}/2$

15. $S = r\theta$

$S = \dfrac{\pi(10)}{3} = \dfrac{10\pi}{3} = \boxed{10.5}$

16.

17. $a = 1/4$

period $= \dfrac{2\pi}{3}$

18.

(example)

19. Add 360° to the angle

20.

MGR

$S = \theta r$

2π to go completely in one circle
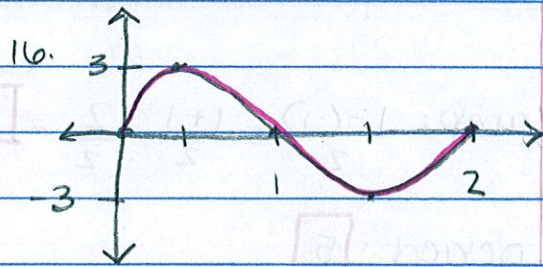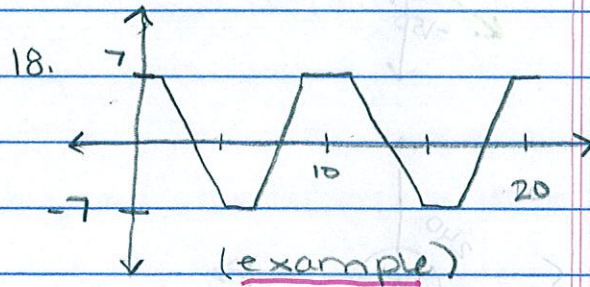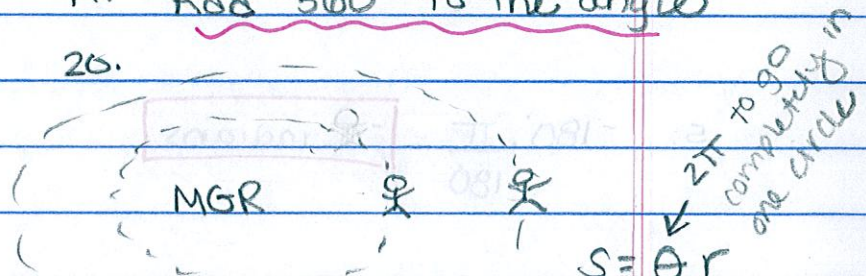
Friend distance $= 10 \cdot 2\pi = 62.8$ ft

your distance $= 15 \cdot 2\pi = 94.2$ ft

$\begin{array}{r} 94.2 \\ -62.8 \\ \hline 31.4 \end{array}$ feet

21. yes, whenever they cross the x-axis.

Trigonometry — Wkst 1

1.

$\sin x = 7/15$ $\csc = 15/7$
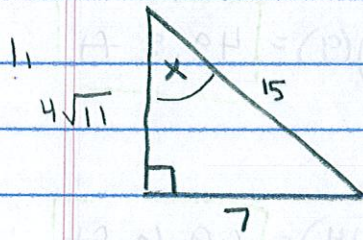
$\cos x = \dfrac{4\sqrt{11}}{15}$ $\sec = \dfrac{15}{4\sqrt{11}} = \dfrac{15\sqrt{11}}{44}$

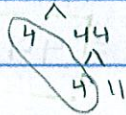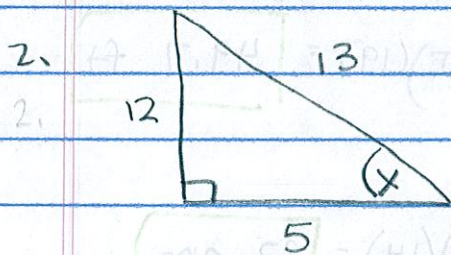$\tan x = \dfrac{7}{4\sqrt{11}} = \dfrac{7\sqrt{11}}{44}$ $\cot = \dfrac{4\sqrt{11}}{7}$

$7^2 + a^2 = 15^2$

$49 + a^2 = 225$

$a^2 = 176$

$a = 4\sqrt{11}$

2.

$\sin x = \dfrac{12}{13}$ $\csc x = \dfrac{13}{12}$

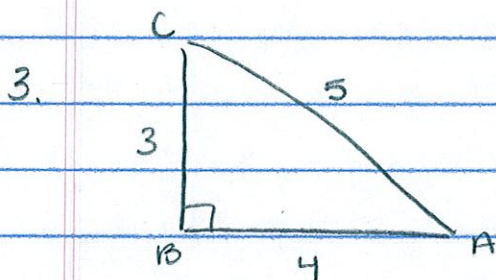$\cos x = \dfrac{5}{13}$ $\sec x = \dfrac{13}{5}$

$\tan x = \dfrac{12}{5}$ $\cot x = \dfrac{5}{12}$

$\sec x = \dfrac{13}{5}$

$\cos x = \dfrac{5}{13}$

3.

$\cos C = \dfrac{3}{5}$ $\tan A = \dfrac{3}{4}$

$\csc C = \dfrac{5}{4}$ $\sec A = \dfrac{5}{4}$

Arc Length & Sector Area

$S = r\theta \leftarrow$ in radians!

1. $315° = \dfrac{7\pi}{4}$ radians

$S = \dfrac{7\pi}{4}(11) = \dfrac{77\pi}{4}$ or $\boxed{60.4 \text{ ft}}$

2. $270° = \dfrac{3\pi}{2}$ radians

$S = \left(\dfrac{3\pi}{2}\right)(13) = \dfrac{39\pi}{2} = \boxed{61.2 \text{ ft}}$

3. $S = \left(\dfrac{3\pi}{2}\right)16 = 24\pi = \boxed{75.4 \text{ ft}}$

4. $S = 13\left(\dfrac{\pi}{6}\right) = \dfrac{13\pi}{6} = \boxed{6.8 \text{ in}}$

5. $60° = \pi/3$ radians

$S = 18\left(\dfrac{\pi}{3}\right) = \dfrac{18\pi}{3} = \boxed{18.8 \text{ cm}}$

6. $75 \cdot \dfrac{\pi}{180} = \dfrac{5\pi}{12}$ radians

$S = \left(\dfrac{5\pi}{12}\right)(16) = \boxed{20.9 \text{ m}}$

7. $S = \left(\dfrac{7\pi}{4}\right)(9) = \boxed{49.5 \text{ ft}}$

8. $S = \left(\dfrac{19\pi}{12}\right)(14) = \boxed{69.6 \text{ ft}}$

9. $315° = 7\pi/4$ radians

$S = \left(\dfrac{7\pi}{4}\right)(8) = \boxed{44 \text{ cm}}$

10. $150° = 5\pi/6$ radians

$S = \left(\dfrac{5\pi}{6}\right)(19) = \boxed{49.7 \text{ ft}}$

11. $S = \left(\dfrac{\pi}{2}\right)(14) = \boxed{22 \text{ cm}}$

12. $S = \left(\dfrac{3\pi}{4}\right)(13) = \boxed{30.6 \text{ ft}}$