CC Alg 2/Trig H HW #_____
Review: 10-5, 10-6, Triangle Area, Trig Equations, Trig Graphs

1. Solve $\Delta FUN$, if $f = 4$, $u = 8$, and $n = 6$. Round to the nearest tenth.

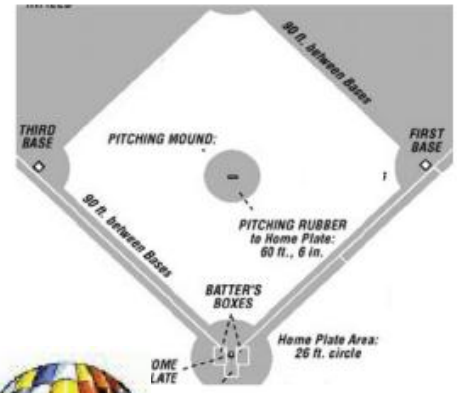
2. Solve $\Delta EAT$, if $\angle E = 32^\circ$, $e = 15$, and $a = 18$. Give <u>both</u> possible answer sets and round to the nearest tenth.

3. Find the area of $\Delta RAT$, if $\angle R = 115°$, $\angle A = 15°$, and r = 12. Round to the nearest tenth.

4. Find the area of $\Delta BUG$, if $b = 3$, $u = 6$, and $g = 7$. Round to the nearest tenth.

5. To find the distance between points $M$ and $P$, a surveyor locates a point $A$, such that $\angle MAP = 110°$, $PA = 422$ ft, and $\angle MPA = 40°$. Find the distance between points $M$ and $P$ to the nearest foot.

6. The pitcher's mound at Angel Stadium is 60.5 ft from home plate. The baseball diamond is a square and the distance between the bases is 90 ft. If Mike Trout is at first base and is trying to steal 2nd base, about how far will the Rangers' pitcher have to throw the ball to first base to pick him off? Round to the nearest tenth of a foot. (Hint: draw triangle connecting home plate, pitcher's mound, and first base. Recall from Geometry, the diagonal of a square bisects opposite angles.)




7. The course of a hot-air balloon takes the balloon directly over points $A$ and $B$, which are 500 m apart. Several minutes later, the angle of elevation from an observer at point $A$ to the balloon is 43.3°, and the angle of elevation from an observer at point $B$ to the balloon is 58.2°. To the nearest meter, what is the balloon's altitude?


8. State the amplitude, period, horizontal shift, vertical shift, and range for the graph of each function.

a) $y = -5\sin\frac{1}{4}(x+\pi)+3$ b) $y = \cos 2\pi(x-3)-4$

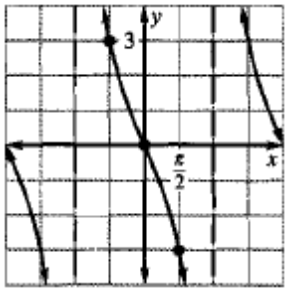
9. State the period and $x$ –intercepts of the asymptotes of the graph of $y = 4\tan 2x$.

10. Write an equation of a trigonometric function:

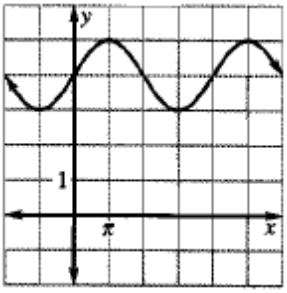
a) a cosine function with maximum at ( 0, 3 ) and minimum at $\left(\frac{\pi}{2}, -1\right)$

b) a sine function with amplitude 6, period $\frac{\pi}{4}$, horizontal translation $\frac{\pi}{2}$, range $-7 \le x \le 5$, and reflection in the line $y = -1$

c) write a tangent function




d) write a sine and a cosine function




11. Solve for $x$ over the interval $0 \le x < 2\pi$.

a) $3\csc^2 x = 6$ b) $2\sin^2 x + 5\cos x + 1 = 0$ c) $3\sin x \sec x - 2\sqrt{3}\sin x = 0$

12. Solve for $x$ over the interval $0° \le x < 360°$. Round angle measures to the nearest tenth of a degree.

a) $\tan x - 2 - 3\cot x = 0$ b) $(\tan x + 1)^2 = \sec^2 x - 3$

13. Graph one period for each of the following functions. Be sure to label $x$- and $y$-axes and use an accurate scale.

a) $y = -3\cos 2(x + \pi)$ b) $y = \sin\frac{1}{3}\left(x + \frac{\pi}{2}\right) - 2$ c) $y = 2\tan\left(x - \frac{\pi}{2}\right) + 1$

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Selected Answers: 1. $\angle F \approx 29.0°$, $\angle N \approx 46.7°$, $\angle U \approx 104.3°$ 2. $\angle A \approx 39.5°$, $\angle T \approx 108.5°$, $t \approx 26.8$ or $\angle A \approx 140.5°$, $\angle T \approx 7.5°$, $t \approx 3.7$ 3. $\approx 15.6$ or $15.7$ u$^2$ 4. $\approx 8.9$ u$^2$ 5. $\approx 793$ ft

6. $\approx 63.7$ ft 7. $\approx 1133$ m 11. a) $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$ b) $\frac{2\pi}{3}, \frac{4\pi}{3}$ c) $0, \frac{\pi}{6}, \pi, \frac{11\pi}{6}$

12. a) 71.6°, 135°, 251.6°, 315° b) 123.7°, 303.7°