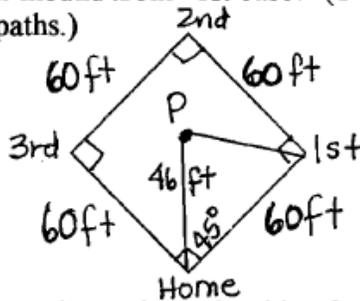


Round answers to the nearest tenth.

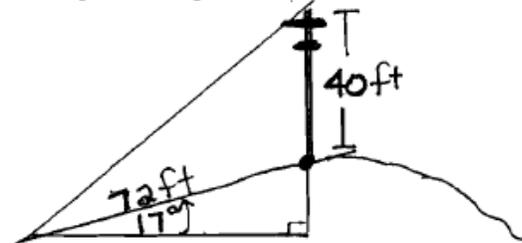
Triangle Area formulas $A = \frac{1}{2} ab \sin C$ $A = \sqrt{s(s-a)(s-b)(s-c)}$

- Solve $\triangle MAY$, if $\angle M = 90^\circ$, $m = 12$, and $y = 9$. Do not use the Law of Sines.
- Solve $\triangle FUN$, if $f = 4$, $u = 8$, and $n = 6$.
- Find the area of $\triangle RAT$, if $\angle R = 115^\circ$, $\angle A = 15^\circ$, and $r = 12$.
- Find the area of $\triangle BUG$, if $b = 3$, $u = 6$, and $g = 7$.
- A jet takes off from a regional airport. After 1000 meters of a steady climb, the jet's altitude is 350 meters. Find the angle of elevation of the jet as it climbs.
- To find the distance between points M and P, a surveyor locates a point A, such that $PA = 422$ ft, $\angle MAP = 110^\circ$, and $\angle MPA = 40^\circ$. Find the distance between points M and P.
- The pitcher's mound on a softball field is 46 feet from home plate. The distance between the bases is 60 feet. How far is the pitcher's mound from first base? (The pitcher's mound is NOT in the center of the square formed by the base paths.)

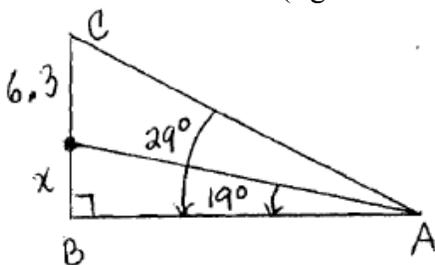


P = pitcher's mound

- A vertical telephone pole 40 feet tall stands on the side of a hill as shown. Find the length of the wire that will reach from the top of the pole to a point 72 feet downhill from the pole.



- Find the value of x . (figure not drawn to scale)



- Graph the parametric equations $x = -2t + 3$ and $y = t - 2$ for $0 \leq t \leq 5$.
- Write an xy -equation for the parametric equations $x = 3t + 3$ and $y = 6t - 2$, for $0 \leq t \leq 5$. Give the domain and range.

12. You are travelling at 55 mph on highway that runs directly from your starting point through the town of Jackson, which is 40 miles east and 30 miles north of your starting point. Write a set of parametric equations for your trip. How far east and north of your starting point will you be after 2 hours?

$$x = (v \cos \theta)t + x_0$$

$$y = (v \sin \theta)t + y_0$$

$$(x_0, y_0) \text{ is location at } t = 0$$

13. A goalie saves the ball and drop kicks it as far as she can down the field. The ball has an initial speed of 26 ft/sec and is kicked from a height of 2 feet above the ground. The ball is kicked at an angle of 45° .

- (a) Write a set of parametric equations to describe the ball's motion.
- (b) How long is the ball in the air?
- (c) How far down the field does the ball hit the ground?

$$x = (v \cos \theta)t + x_0$$

$$y = \frac{-1}{2}gt^2 + (v \sin \theta)t + y_0$$

$$(x_0, y_0) \text{ is location at } t = 0$$

$$g = 32 \text{ ft/sec}^2$$

Answers: 1. $a \approx 7.9$, $\angle A \approx 41.4^\circ$, $\angle Y \approx 48.6^\circ$ 2. $\angle F \approx 29.0^\circ$, $\angle N \approx 46.1^\circ$, $\angle U \approx 104.3^\circ$
 3. ≈ 15.6 or 15.7 u^2 4. $\approx 8.9 \text{ u}^2$ 5. $\approx 20.5^\circ$ 6. $\approx 793.1 \text{ ft}$
 7. $\approx 42.6 \text{ ft}^2$ 8. $\approx 92.0 \text{ ft}$ 9. ≈ 10.3
 11. $y = 2x - 8$, D: $3 \leq x \leq 18$, R: $-2 \leq x \leq 28$
 12. 88 miles east and 66 miles north 13. (b) 1.3 sec. (c) 23.9 ft