

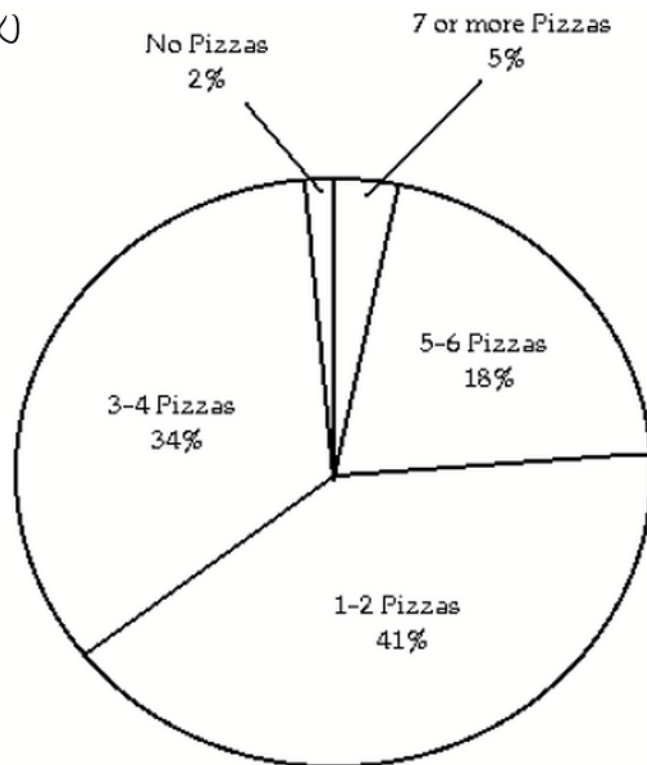
18) If State University has approximately 47,000 students, about how many would you expect to consume 5-6 pizzas in a typical month?

$$\frac{x}{47000} = \frac{18}{100} \quad \text{or} \quad x = 18\% \cdot 47000$$

$$\cancel{100}x = \frac{18(\cancel{47000})}{\cancel{100}}$$

$$x = 8460$$

About 8,460 students consume 5-6 pizzas in a typical month.



28) Two angles are complementary if their sum is 90° . If the measure of the first angle is x° , and the measure of the second angle is $(3x - 2)^\circ$, find the measure of each angle.

Let x be the measure of the first angle.

$$\text{So } x + (3x - 2) = 90$$

$$4x - 2 = 90$$

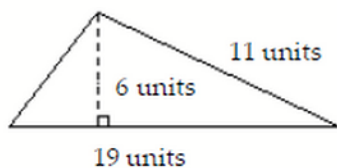
$$4x = 92$$

$$x = 23$$

$$\text{and } 3(23) - 2 = 69 - 2 = 67$$

The first angle measures 23° and the second angle measures 67°

32)



$$A = \frac{1}{2} \cdot b \cdot h$$

$$A = \frac{1}{2} (19)(6)$$

$$A = 57$$

The area is 57 square units

Solve.

34) To trim the edges of a rectangular table cloth, 42 feet of lace are needed. The length of the table cloth is exactly one-half its width. What are the dimensions of the table cloth?

$$P = 42 \text{ and } P = 2l + 2w \text{ and } l = \frac{1}{2}w$$

$$42 = 2l + 2w$$

$$42 = 2\left(\frac{1}{2}w\right) + 2w$$

$$42 = w + 2w$$

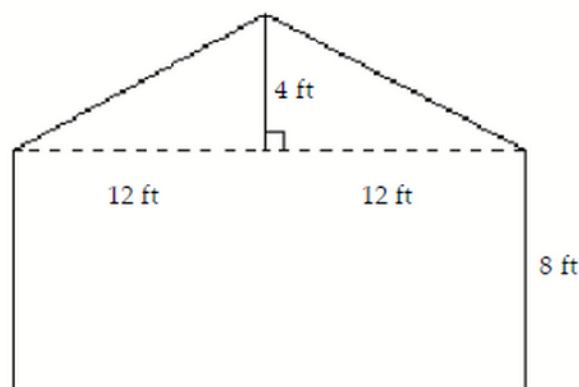
$$\frac{42}{3} = \frac{3w}{3}$$

$$14 = w$$

$$l = \frac{1}{2}w = \frac{1}{2}(14) = 7$$

The length is 7 feet
and the width is
14 feet.

35)



The drawing shows the end of a building that is to be bricked. If the area of the side of a brick used is $\frac{1}{8}$ sq. ft, find the number of bricks needed to completely cover the side of the building.

First find area, then count how bricks are needed.

$$A_{\triangle} = \frac{1}{2} \cdot (24) \cdot (4) = 48$$

$$A_{\square} = (24)(8) = 192$$

Total Area: 192

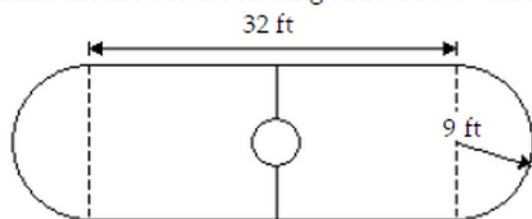
$$\begin{array}{r} + 48 \\ 240 \end{array}$$

$$\# \text{ of bricks: } 240 \div \frac{1}{8} = 240 \cdot \frac{8}{1} = 1920$$

The number of bricks needed to cover the side of the building is 1920.

Solve.

38) Find the area of the skating rink. Use $\pi = 3.14$ and round to the nearest tenth.



The two ends make a complete circle w/ radius 9.

$$A = \pi r^2$$

$$A = \pi (9)^2$$

$$A \approx 3.14 (81)$$

$$A \approx 254.34$$

$$A_{\square} = (32)(18)$$

$$A_{\square} = 576$$

$$\begin{array}{r} \text{Total Area: } 576.00 \\ + 254.34 \\ \hline 830.34 \end{array}$$

Approximately 830.3 ft^2

44) One of the base angles of an isosceles triangle is 23° . Find the measures of the other two angles. (An isosceles triangle has two equal base angles.)



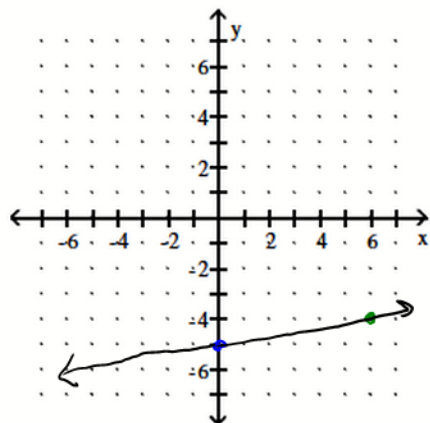
$$x + 23 + 23 = 180$$

$$x + 46 = 180$$

$$x = 134$$

The other base angle is 23° and the third angle is 134° .

$$79) y = \frac{1}{6}x - 5$$



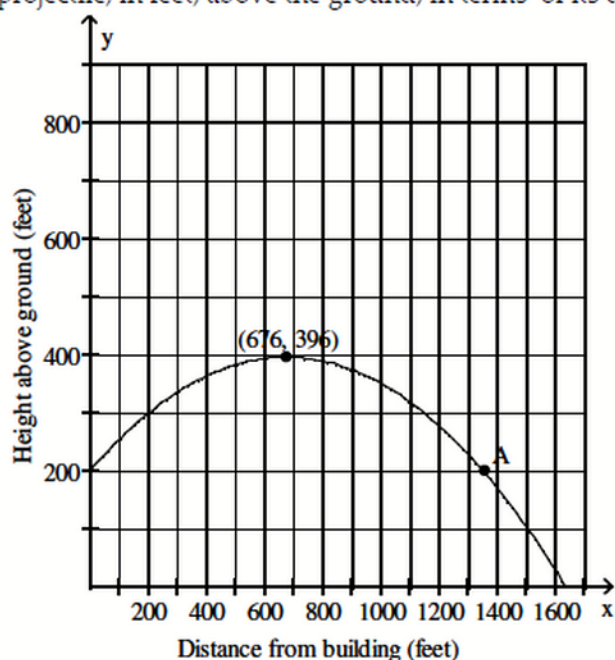
using slope intercept:

$$m = \frac{1}{6} \rightarrow \text{up 1, right 6 from } (0, -5)$$

$$y\text{-int: } (0, -5)$$

- 83) A projectile is fired from the top of a building 200 feet high. The graph shows the height of the projectile, in feet, above the ground, in terms of its distance, in feet, from the base of the building.

83)



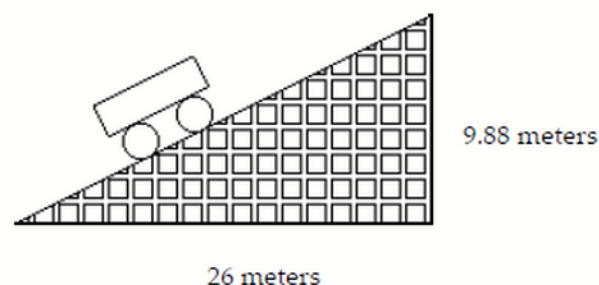
Estimate the coordinates of the point A. Interpret the coordinates in terms of the information given.

$(1350, 200)$

When the projectile is 1,350 feet from the base of the building, it is 200 feet above the ground.

Solve.

- 105) A section of roller coaster track has the dimensions shown in the diagram. Find the grade of the track, which is the slope written as a percent.



grade is slope.

$$m = \frac{9.88}{26}$$

$$m \approx 0.38$$

$$0.38 = 38\%$$

The grade of the track is 38%

Find the point-slope form of the equation of the line satisfying the given conditions and use this to write the slope-intercept form of the equation.

116) Slope = 5, passing through (3, 5)

$y = mx + b$, but we don't have the y-intercept. So we use point-slope, then isolate y.

$$y - y_1 = m(x - x_1)$$

$$y - 5 = 5(x - 3) \quad \text{point-slope form}$$

$$y - 5 = 5x - 15$$

$$\boxed{y = 5x - 10} \quad \leftarrow \text{slope-intercept form}$$

119) Passing through (-5, -4) and (-10, -3)

Need to find the slope first:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{-3 - (-4)}{-10 - (-5)}$$

$$m = \frac{-3 + 4}{-10 + 5}$$

$$m = \frac{1}{-5}$$

$$m = -\frac{1}{5}$$

Now use either of points and the slope:

$$y - y_1 = m(x - x_1)$$

$$y - (-4) = -\frac{1}{5}(x - (-5))$$

$$y + 4 = -\frac{1}{5}(x + 5) \quad \text{point-slope form}$$

Now isolate y:

$$y + 4 = -\frac{1}{5}x - 1$$

$$\boxed{y = -\frac{1}{5}x - 5}$$