

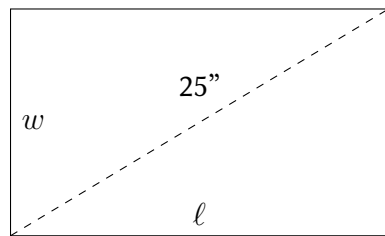
Math-08 Homework #8

Reading

- Text book section 1.2,1.6,1.7

Problems

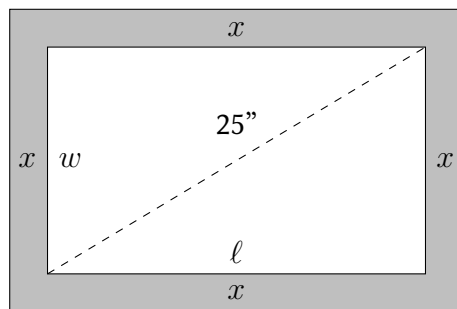
- 1). You are a product manager at an electronics firm in charge of a proposed new line of 25-inch monitors (i.e., the length of the diagonal across the screen is 25 inches):



You realize that the most appealing ratio for the dimensions of the screen would follow the golden ratio:

$$\frac{\ell}{w} = \frac{1 + \sqrt{5}}{2} \approx 1.6 = \frac{8}{5}$$

- a). Using the estimate of $8/5$, determine the dimensions ($\ell \times w$) for the new monitor. Round each dimension to two decimal places.
- b). There needs to be an equal amount of casing around the edges of the screen and the packaging department would like the monitor to have a total area of 400 square inches.



Determine the width of the casing (x) around the screen. Round your answer to two decimal places.

- 2). A man stands atop a 256 foot cliff with a ball.
- How long does it take for the ball to hit the ground if he simply releases the ball?
 - How long does it take for the ball to hit the ground if he throws the ball up with a velocity of 16 ft/s? (Hint: keep the negative solution around for later).
 - How long does it take for the ball to hit the ground if he throws the ball down with a velocity of 16 ft/s? (Hint: no additional calculations are needed).
 - Assume that a lady is standing on the ground below the cliff and throws a ball up so that it passed the man on the cliff at a velocity of 16 ft/s. How long would it be before the ball hits the ground? (Hint: you already have all the information that you need).
- 3). For each of the following inequalities, graph the solution set and state the solution set in interval notation.
- $2|5 - 3x| + 7 < 21$
 - $2|5 - 3x| + 7 \geq 21$
- 4). Solve for x , stating the solution in interval notation.

$$\frac{x+1}{x-2} < \frac{x-3}{x+4}$$

- 5). Determine the domain for each of the following expressions, stating each in interval notation.

a).

$$\sqrt{\frac{x^2 - 3x - 10}{x^2 - 9x + 20}}$$

b).

$$\sqrt[3]{\frac{x^2 - 3x - 10}{x^2 - 9x + 20}}$$