

## Math-19 Section 1

### Homework #2

**Due: 6/17/2019 9:00am**

#### Reading

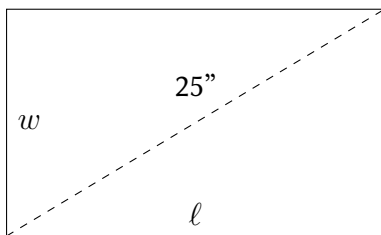
Sections 1.5 and 1.7

#### Problems

1. A man stands atop a 256 ft cliff with a ball. Recall that the equation of motion that we presented in class is given by:

$$h = h_0 + v_0t - 16t^2$$

- (a) How long does it take for the ball to hit the ground if he simply releases the ball?
  - (b) 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?
  - (c) 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).
  - (d) 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).
2. 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):

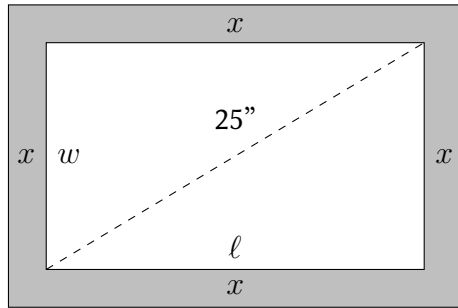


You realize that the most appealing ratio for the dimensions of the screen would follow the golden ratio:

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

- (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. The packaging department would like the monitor and casing 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.