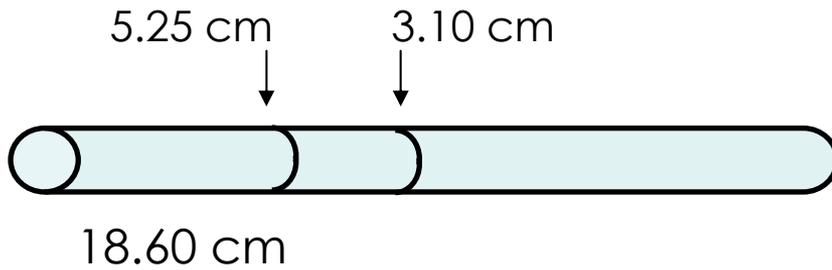


# *Shop Math Refresher: Part 2*

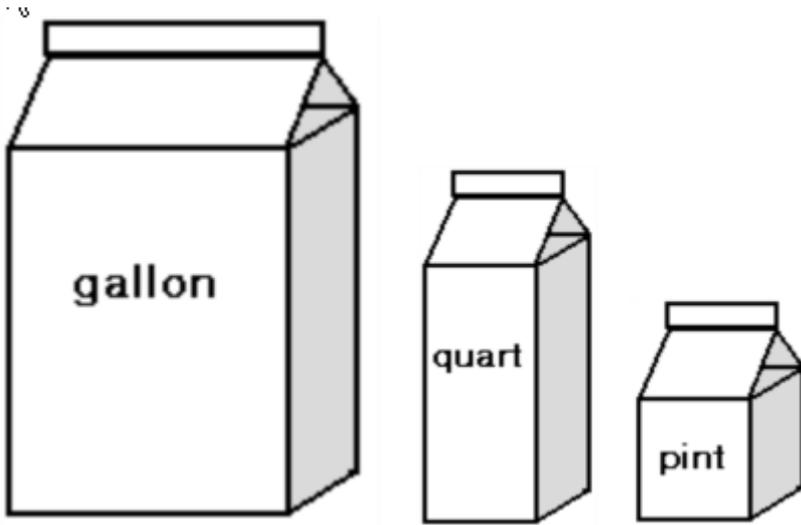
## *Self Study*

If you get stuck on a problem, check the **Explanations** that follow the question section.

When you are done with all the problems, check your answers against the Answer Key.

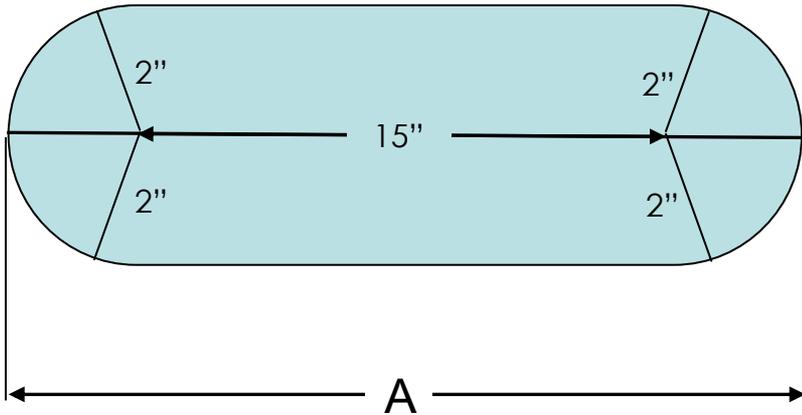


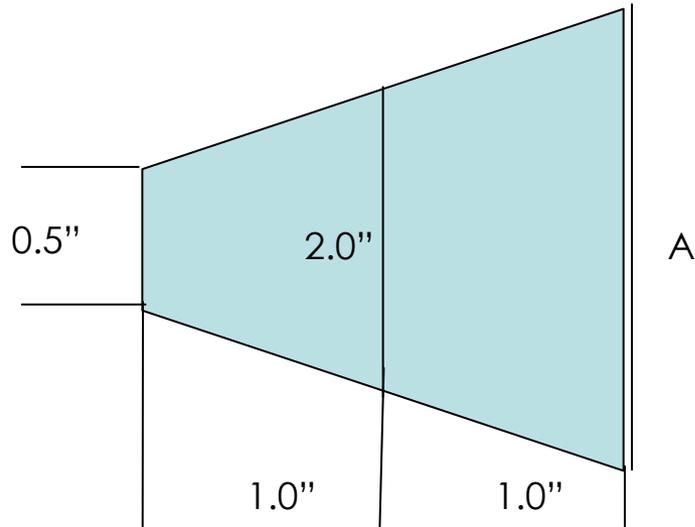
1. A piece 5.25 cm and a piece 3.10 cm are cut from a rod 18.60 cm long. How long is the remaining piece?
- a. 10.25 cm
  - b. 13.35 cm
  - c. 26.75 cm
  - d. 31.35 cm
  - e. *none of these*



2. A shop has 4 gallons, 2 quarts and 1 pint of cutting oil on hand. It uses 12 pints. How many pints are left?
- a. 37 pints
  - b. 32 pints
  - c. 25 pints
  - d. 16 pints
  - e. *none of these*

3. How long is A?
- a. 12 inches
  - b. 15 inches
  - c. 17 inches
  - d. 19 inches
  - e. *none of these*





4. What is the length of A?
- a. 2.0 inches
  - b. 3.5 inches
  - c. 4.0 inches
  - d. 8.0 inches
  - e. *none of these*



18  $\frac{1}{4}$  inches

5. This rod is to be cut into 2 parts so that one is twice as long as the other. If  $\frac{1}{4}$  inches is wasted in cutting, how long will the longer part be?
- a. 6 inches
  - b. 12 inches
  - c. 12  $\frac{1}{4}$  inches
  - d. 18  $\frac{1}{4}$  inches
  - e. *none of these*



18  $\frac{1}{4}$  inches

6. How many 3 inch pieces can be cut from this rod if  $\frac{1}{4}$  inch is wasted in each cut?
- a. 4
  - b. 5
  - c. 6
  - d. 7
  - e. *none of these*



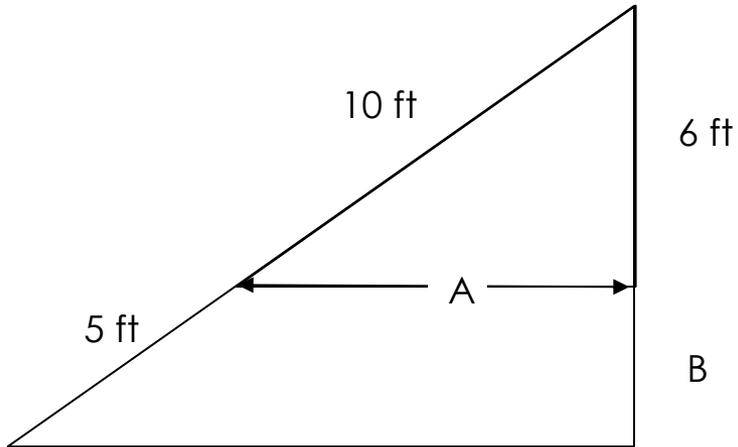
18  $\frac{1}{4}$  inches

7. This rod is to be cut into 4 equal parts. If  $\frac{1}{4}$  inch is wasted in each cut, how long is each part?
- a. 4.000
  - b. 4.125
  - c. 4.375
  - d. 4.500
  - e. *none of these*

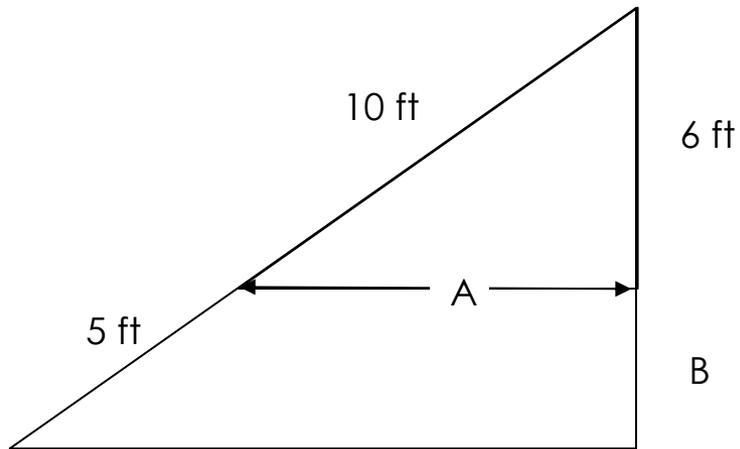


18  $\frac{1}{4}$  inches

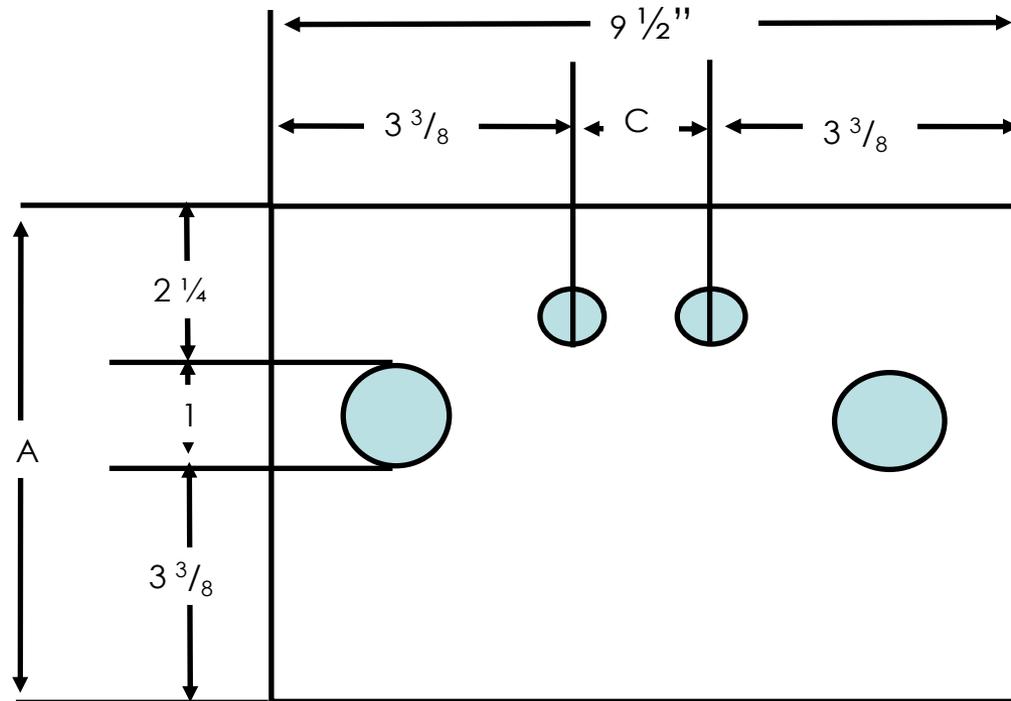
8. This rod is 25% as long as another rod. How long is the other rod?
- a. 4.25 inches
  - b. 43.25 inches
  - c. 72.00 inches
  - d. 73.00 inches
  - e. *none of these*



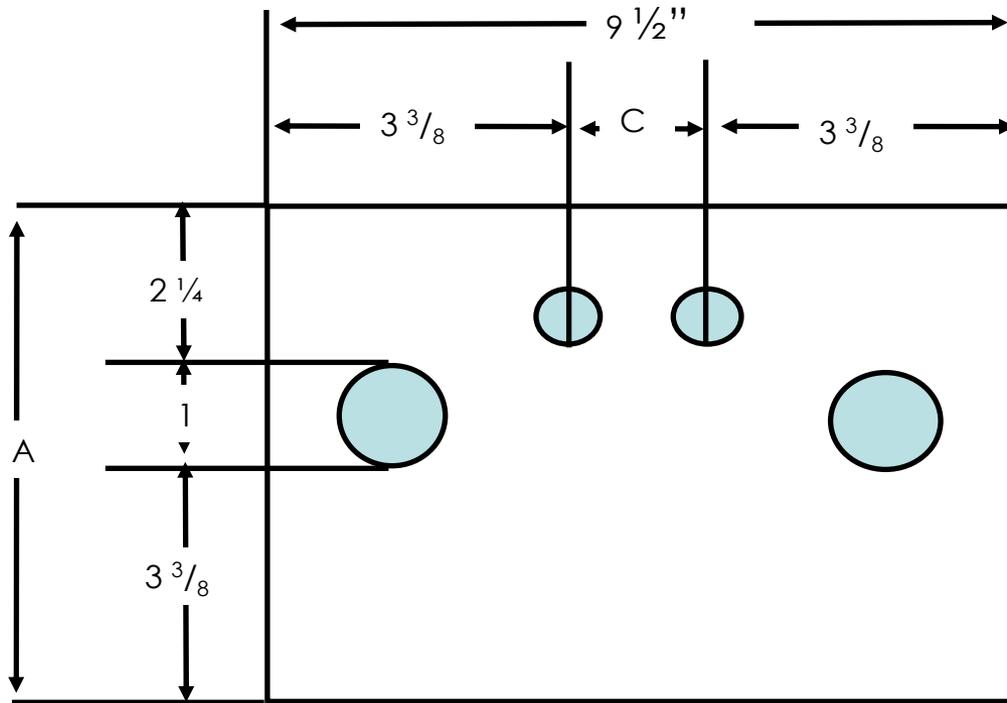
9. How long is A?
- a. 2 ft
  - b. 4 ft
  - c. 6 ft
  - d. 8 ft
  - e. *none of these*



10. How long is B?
- a. 1 ft
  - b. 2 ft
  - c. 3 ft
  - d. 4 ft
  - e. *none of these*

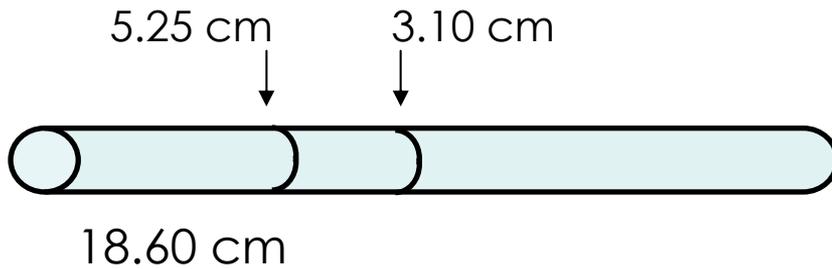


11. What is the distance of A?
- $6 \frac{5}{8}$  inches
  - $6 \frac{4}{12}$  inches
  - $6 \frac{3}{4}$  inches
  - $7 \frac{1}{2}$  inches
  - none of these*



12. What is the length of C?
- $2 \frac{1}{8}$  inches
  - $2 \frac{3}{4}$  inches
  - $6 \frac{1}{2}$  inches
  - $6 \frac{3}{4}$  inches
  - none of these

This is the final question.  
Check your answers against  
the Answer Key.



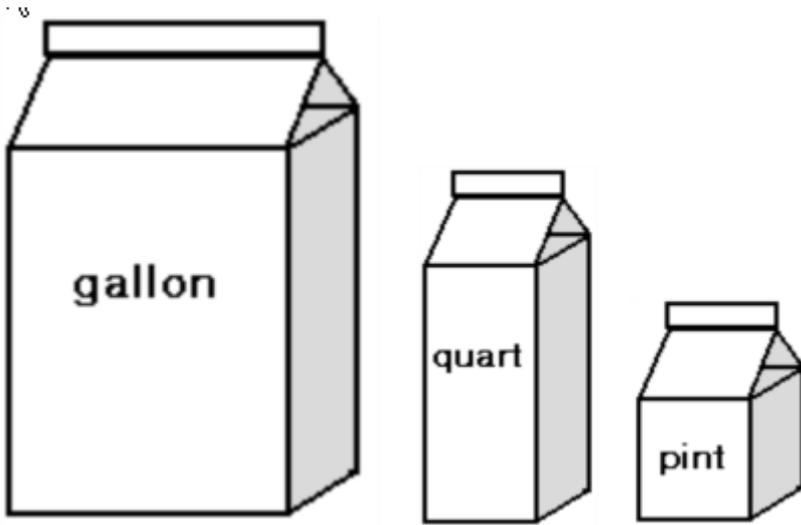
1. A piece 5.25 cm and a piece 3.10 cm are cut from a rod 18.60 cm long. How long is the remaining piece?
- 10.25 cm
  - 13.35 cm
  - 26.75 cm
  - 31.35 cm
  - none of these*

### How to Solve

$$\begin{array}{r}
 18.60 \text{ cm} \\
 - 5.25 \text{ cm} \\
 \hline
 13.35 \text{ cm} \\
 - 3.10 \text{ cm} \\
 \hline
 10.25 \text{ cm}
 \end{array}$$

### Tip:

When you add and subtract decimals, be sure that you line up the decimal points.

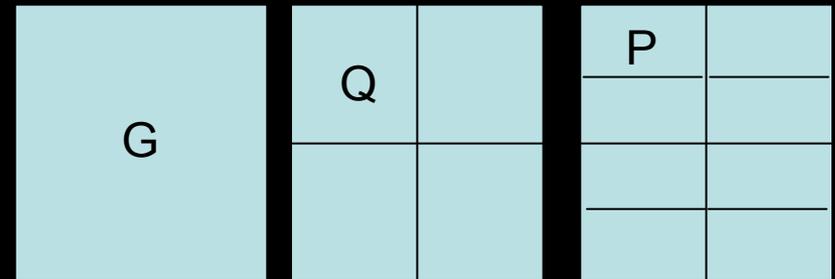


2. A shop has 4 gallons, 2 quarts and 1 pint of cutting oil on hand. It uses 12 pints. How many pints are left?
- a. 37 pints
  - b. 32 pints
  - c. 25 pints
  - d. 16 pints
  - e. none of these

## How to Solve

1. 4 gallons  $\times$  8 pints/gallon = 32 pints
2. 2 quarts  $\times$  2 pints/quart = 4 pints
3. 32 pints + 4 pints + 1 pint = 37 pints
4. 37 pints - 12 pints = 25 pints

The answer is c.



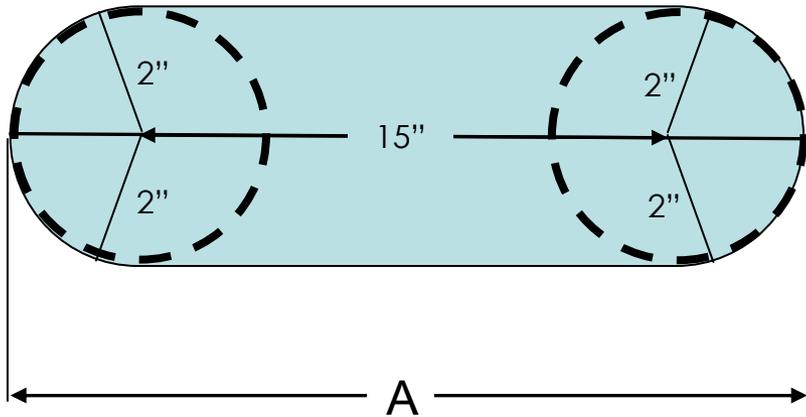
1 Gallon

= 4 quarts

= 8 pints

1 quart

= 2 pints

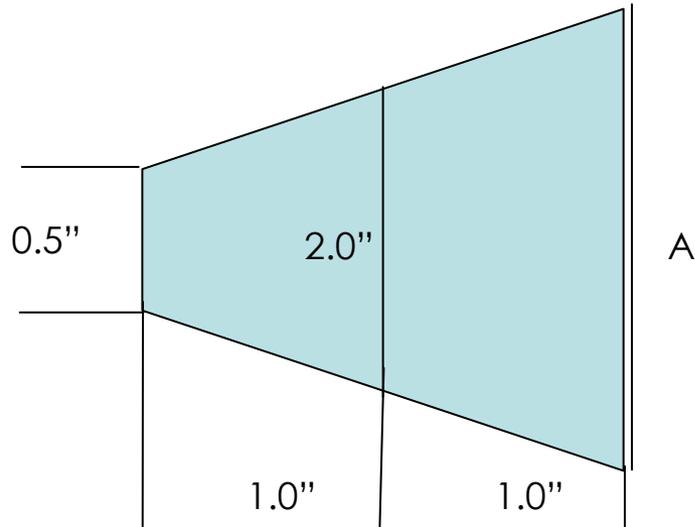


3. How long is A?
- a. 12 inches
  - b. 15 inches
  - c. 17 inches
  - d. 19 inches
  - e. *none of these*

## How to Solve

$$2'' + 15'' + 2'' = 19 \text{ inches.}$$

The correct answer is d.



4. What is the length of A?
- a. 2.0 inches
  - b. 3.5 inches
  - c. 4.0 inches
  - d. 8.0 inches
  - e. *none of these*

### How to Solve

$$0.5 + 1.5 = 2.0$$

$$2.0 + 1.5 = 3.5$$



18  $\frac{1}{4}$  inches

5. This rod is to be cut into 2 parts so that one is twice as long as the other. If  $\frac{1}{4}$  inches is wasted in cutting, how long will the longer part be?
- a. 6 inches
  - b. 12 inches
  - c. 12  $\frac{1}{4}$  inches
  - d. 18  $\frac{1}{4}$  inches

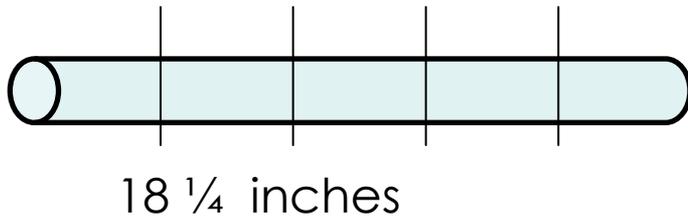
## How to Solve

$$X + 2X = 18$$

$$3X = 18$$

$$3X / 3 = 18 / 3$$

$$X = 6$$

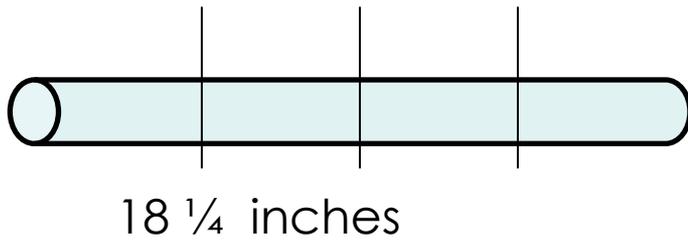


6. How many 3 inch pieces can be cut from this rod if  $\frac{1}{4}$  inch is wasted in each cut?
- a. 4
  - b. 5
  - c. 6
  - d. 7
  - e. *none of these*

## How to Solve

$$3 \frac{1}{4} \text{ inches / cut} \times 5 \text{ cuts} = 16 \frac{1}{4}$$

5 pieces with 2 inches of scrap.



7. This rod is to be cut into 4 equal parts. If  $\frac{1}{4}$  inch is wasted in each cut, how long is each part?
- a. 4.000
  - b. 4.125
  - c. 4.375
  - d. 4.500
  - e. *none of these*

## How to Solve

$$\frac{1}{4} = .25$$

$$3 \times .25 = .75$$

$$18.25 - .75 = 17.50$$

$$17.50/4 = 4.375$$



18  $\frac{1}{4}$  inches

8. This rod is 25% as long as another rod. How long is the other rod?
- a. 4  $\frac{1}{4}$  inches
  - b. 43  $\frac{1}{4}$  inches
  - c. 72.00 inches
  - d. 73.00 inches
  - e. *none of these*

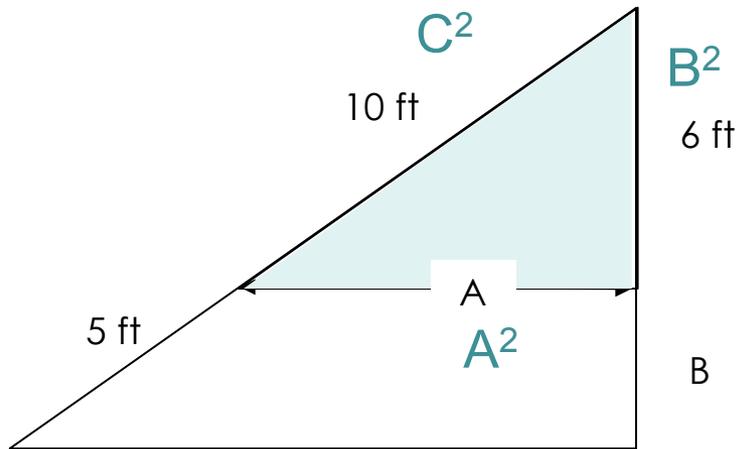
### How to Solve

$$18 \frac{1}{4} = 25\% \times ?$$

$$18 \frac{1}{4} = \frac{1}{4} \times ? \quad \leftarrow \text{SHORTCUT}$$

$$4 \times 18 \frac{1}{4} = \quad ?$$

$$18 \frac{1}{4} \times 4 = 73$$



9. How long is A?
- 2 ft
  - 4 ft
  - 6 ft
  - 8 ft
  - none of these*

## How to Solve

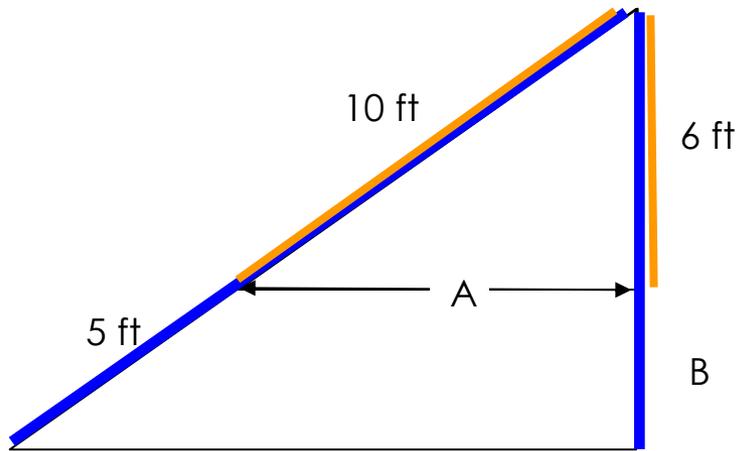
$$A^2 + B^2 = C^2$$

$$A^2 + 6^2 = 10^2$$

$$A^2 = 10^2 - 6^2$$

$$A^2 = 100 - 36 = 64$$

$$A = 8$$



10. How long is B?
- a. 1 ft
  - B 2 ft
  - c. 3 ft
  - d. 4 ft
  - e. *none of these*

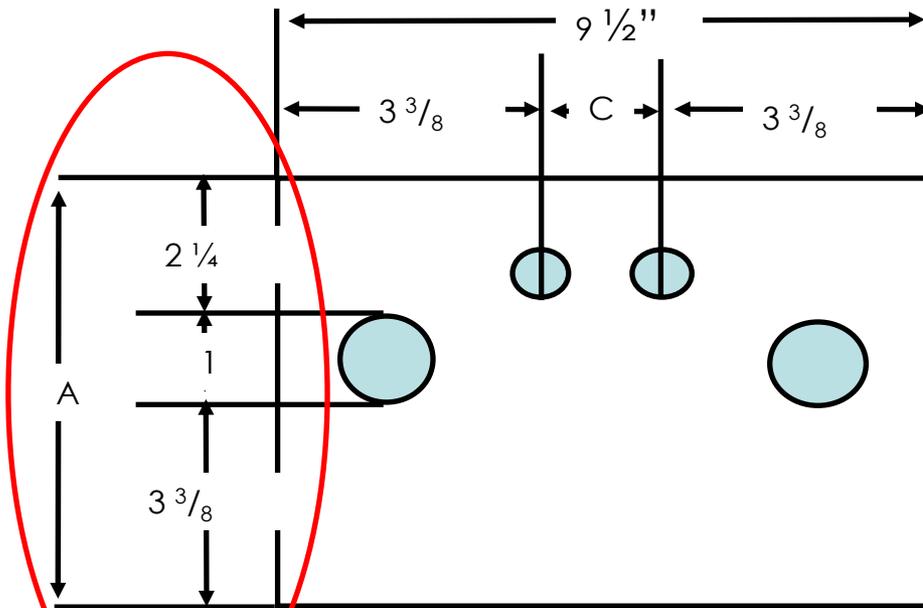
### How to Solve

~~$$\frac{15}{10} = \frac{X}{6}$$~~

$$\frac{15 \times 6}{10} = \frac{10 \times X}{10}$$

$$15 \times 6 = 90, \text{ divided by } 10 = 9.$$

$$9 - 6 = 3$$

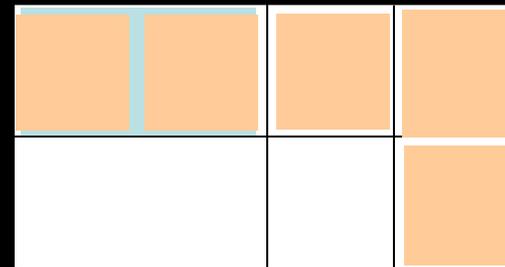


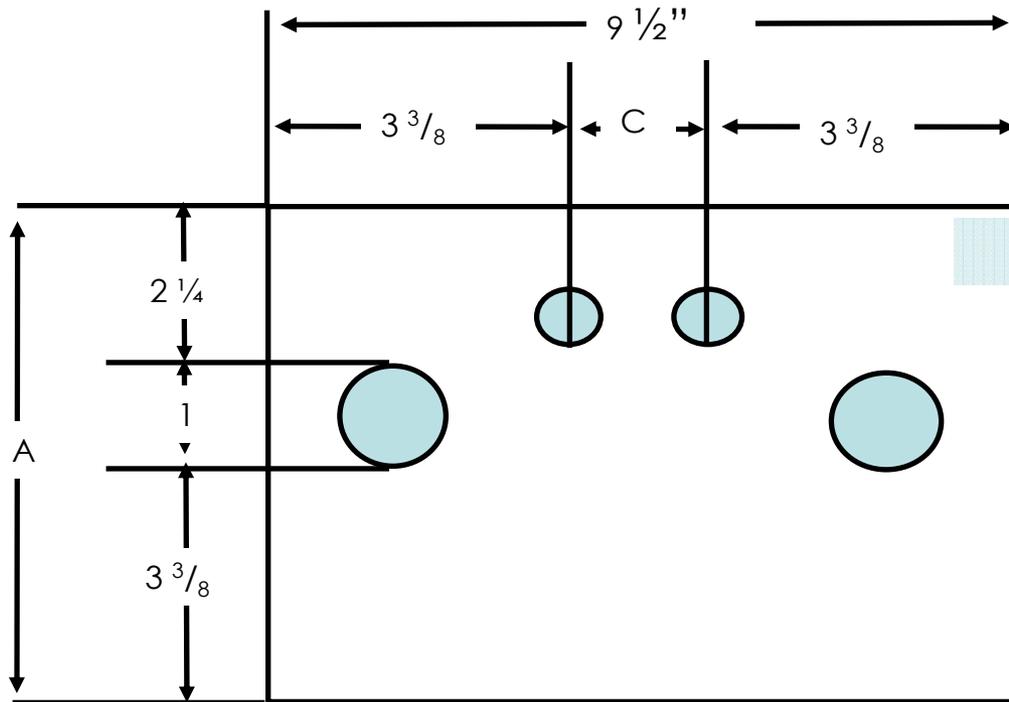
11. What is the distance of A?

- a.  $6 \frac{5}{8}$  inches
- b.  $6 \frac{4}{12}$  inches
- c.  $6 \frac{3}{4}$  inches
- d.  $7 \frac{1}{2}$  inches
- e. none of these

### How to Solve

$$\begin{aligned}
 &2 + 1 + 3 = 6 \\
 &+ \frac{1}{4} + \frac{3}{8} \\
 &= \frac{2}{8} + \frac{3}{8} = \frac{5}{8} \\
 &A = 6 \frac{5}{8}
 \end{aligned}$$





12. What is the length of C?
- 2 1/8 inches
  - 2 3/4 inches
  - 6 1/2 inches
  - 6 3/4 inches
  - none of these

### How to Solve

$$C = 9 \frac{1}{2} - (3 \frac{3}{8} + 3 \frac{3}{8})$$

$$C = 9 \frac{4}{8} - 6 \frac{6}{8}$$

$$C = 8 \frac{12}{8} - 6 \frac{6}{8}$$

$$C = 2 \frac{6}{8} = 2 \frac{3}{4}$$

Answer Key

- |      |       |
|------|-------|
| 1. A | 7. C  |
| 2. C | 8. D  |
| 3. D | 9. D  |
| 4. D | 10. C |
| 5. B | 11. A |
| 6. B | 12. B |

You have completed Part II of the Shop Arithmetic Self Study Practice.