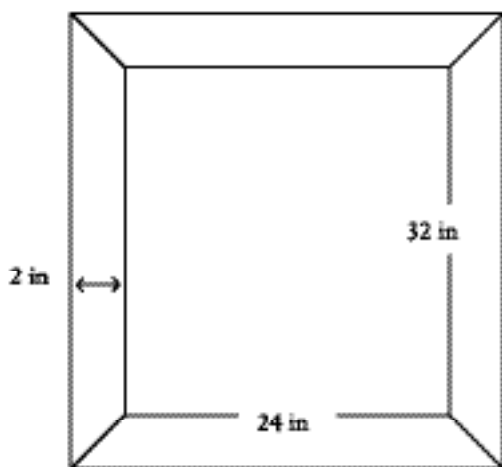


MEASUREMENT PRACTICE

Now it's time to practice the skills in this chapter. Answer the following 15 questions, and then review the answer explanations that follow.

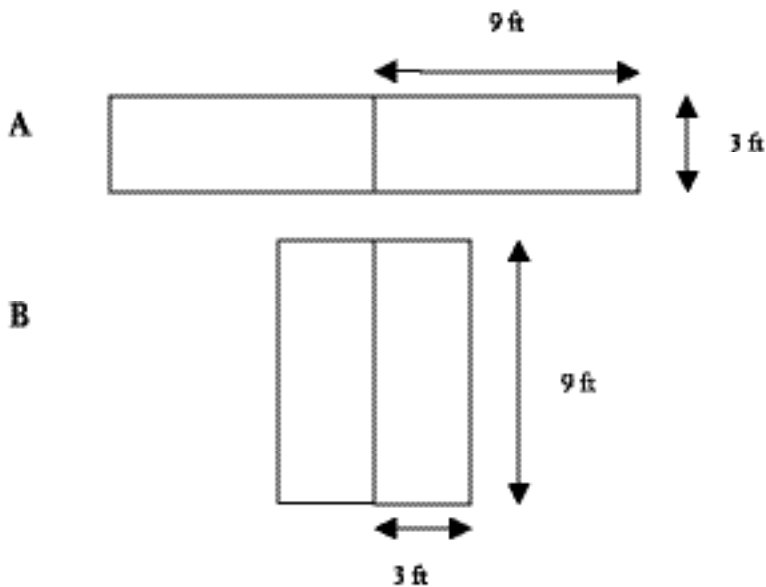
1. A carpenter is measuring a piece of plywood. The piece of plywood is 8 feet 7 inches long. He only needs a piece of plywood 7 feet 6 inches long. How many inches does he need to cut off to have the correct length?
 - a. 12 inches
 - b. 13 inches
 - c. 11 inches
 - d. 14 inches
2. Edmund is doing repairs on a house and needs to cut a square in the wall for an intercom. Each side of the square needs to be 18 cm. If 1 inch = 2.54 centimeters, how many inches is each side? (Round to the tenths place)
 - a. 7.1 in
 - b. 9.0 in
 - c. 7.8 in
 - d. 45.7 in
3. An electrician needs to calculate how many centimeters of electrical tape he needs for a job. If there are 100 centimeters in 1 meter, how many centimeters of electrical tape will he need if he needs 10 meters of tape?
 - a. 110 centimeters
 - b. 1,000 centimeters
 - c. 10,000 centimeters
 - d. 1,100 centimeters
4. Teresa is following the directions for mixing cement. According to the directions, she needs 13 gallons of water for the amount of cement mix she is using. She only has a container that measures liters. If 1 gallon = 3.8 liters, how many liters will she need?
 - a. 3.4 L
 - b. 494 L
 - c. 39.0 L
 - d. 49.4 L

5. A customer service representative is asked how many miles the company is from Town A. She knows that the company is between Town A and Town B. She also knows that it is 16.6 miles between Town A and Town B, and that Town B is 7.2 miles from the company. What is the correct answer to the customer's question?
- 7.2 miles
 - 8.3 miles
 - 9.4 miles
 - 23.8 miles
6. Mishka took a water measurement that read 174 milliliters. All of his records need to be in liters. Based on the 174 milliliters reading, how many liters should he record?
- 174 L
 - 0.174 L
 - 1.74 L
 - 0.0174 L
7. Tess works at a fabric store and is helping a customer who wants to buy two yards of French ribbon. If the price of the ribbon is \$0.75 per foot, what is the total cost to the customer?
- \$1.50
 - \$3.00
 - \$4.30
 - \$4.50
8. Lee is constructing a frame for a poster. The poster is 24 inches wide by 32 inches long and he wants the frame to expand beyond the poster 2 inches on every side. What will the perimeter of the frame be?



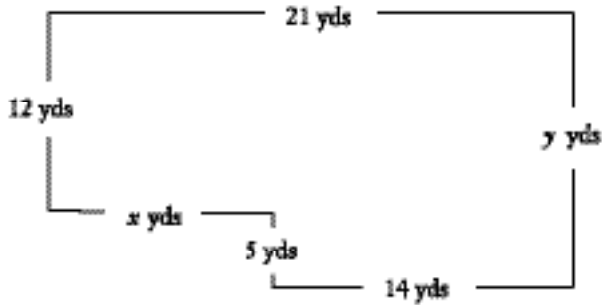
- 112 in
- 116 in
- 120 in
- 128 in

9. Horatio is asked by his supervisor to consolidate three bins of apples into one. The first bin has 5 lbs 6 oz of apples, the second has 7 lbs 12 oz, and the third has 14 lbs 4 oz. After he puts all the apples into one bin, what is the total weight of the apples? (1 pound = 16 ounces)
- 26 lbs 6 oz
 - 27 lbs 6 oz
 - 28 lbs 2 oz
 - 27 lbs 12 oz
10. A carpenter needs to center a headboard in a room against the wall. How much room should she leave on either side of the headboard if the wall is 12 feet 2 inches wide and the headboard is 6 feet 6 inches wide?
- 5'6"
 - 5'8"
 - 2'8"
 - 2'10"
11. A server is setting up tables for a private party in the back room of the restaurant where he works. He has two 3 ft \times 9 ft tables that he must put together to make 1 large table. How much greater will the perimeter be if he chooses set-up A instead of set-up B?



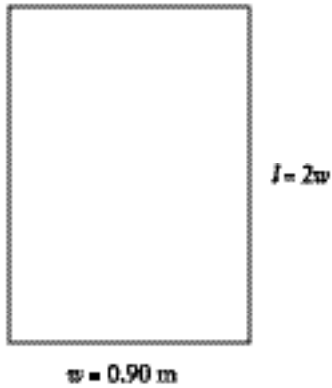
- 3 ft
- 6 ft
- 9 ft
- 12 ft

12. Ricardo is hired to build a wooden fence around the lot below. What is the perimeter of this lot?



- a. 54 yds
b. 66 yds
c. 76 yds
d. 252 yds
13. A mason worker has been hired to tile a rectangular area of a patio that measures 2 yds \times 4 yds. He has been instructed to tile the entire area with no space left in between the tiles. Each tile is square and measures 3 in \times 3 in. How many tiles will he need in order to cover the area of the patio?
- a. 96 tiles
b. 864 tiles
c. 1,152 tiles
d. 3,456 tiles
14. A telemarketer is arranging the delivery of a large piece of exercise equipment to a customer. The moving company charges \$0.40 per pound and \$0.35 per mile. The exercise machine weighs 215 lbs and the customer lives 88 kilometers away. How much will the cost of delivery be? (1 mi = 1.6 km)
- a. \$105.25
b. \$116.80
c. \$135.28
d. \$174.00

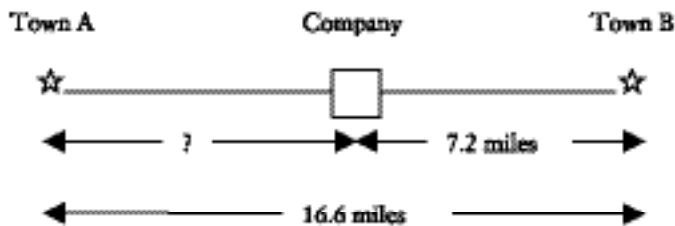
15. Erika is trying to decide what size shades she should get to cover a window in a client's house that she is decorating. The window's length is twice as long as the window's width. If the width is 0.90 m, what dimensions, in inches, should her shade be (1 inch = 2.54 cm)? Round your answer to the nearest tenth.



- a. 35.4 in \times 17.7 in
- b. 35.4 in \times 70.9 in
- c. 90 in \times 180 in
- d. 228.6 in \times 457.2 in

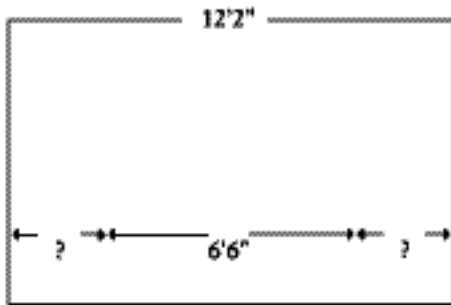
ANSWERS

1. **b.** This is a subtraction problem. Subtract 7 feet 6 inches from 8 feet 7 inches; 7 inches – 6 inches = 1 inch, and 8 feet – 7 feet = 1 foot. Therefore, 1 foot 1 inch needs to be cut. However, the question asks for the answer in inches; 1 foot = 12 inches, so add 12 inches and 1 inch, and the answer is 13 inches.
2. **a.** To calculate inches, divide 18 cm by 2.54 cm/in; $18 \text{ cm} \div 2.54 \approx 7.0866$ inches. Rounding to the tenths place, $7.0866 \approx 7.1$ inches.
3. **b.** If there are 100 centimeters in 1 meter, then to find how many centimeters are in 10 meters, multiply 100 by 10; $100 \text{ cm/m} \times 10 \text{ m} = 1,000$ centimeters.
4. **d.** There are 3.8 L per 1 gallon. To figure out how many liters Teresa will need for her mix, convert gallons to liters by multiplying $13 \text{ gal} \times 3.8 \text{ L/gal} = 49.4 \text{ L}$.
5. **c.** To calculate the distance between Town A and the company, take the total distance (16.6 miles) and subtract the distance from the company to Town B; $16.6 \text{ miles} - 7.2 \text{ miles} = 9.4 \text{ miles}$.

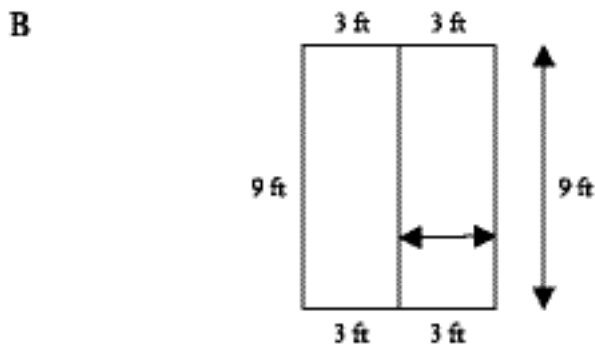
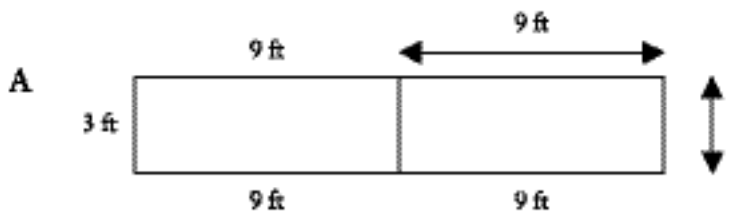


6. **b.** There are 1,000 milliliters in 1 liter. To calculate how many liters 174 milliliters are, divide 174 by 1,000; $174 \text{ mL} \div 1,000 \text{ mL/L} = 0.174 \text{ L}$.
7. **d.** First convert yards to feet. Since there are 3 ft in a yard, the customer wants to buy 6 ft of ribbon: $2 \text{ yds} \times 3 \text{ ft/yd} = 6 \text{ ft}$. Multiply 6 ft by the cost of ribbon per foot to get the total price; $6 \text{ ft} \times \$0.75/\text{ft} = \4.50 .
8. **d.** To calculate the perimeter, add up all four sides of the rectangle. The length of the frame will be the length of the poster (32 in) plus two more inches on *each* side; $32 \text{ in} + 2 \text{ in} + 2 \text{ in} = 36 \text{ in}$. The width of the frame is the width of the poster (24 in) plus two inches on *each* side; $24 \text{ in} + 2 \text{ in} + 2 \text{ in} = 28 \text{ in}$. To find the perimeter add the two widths and two lengths together; $28 \text{ in} + 28 \text{ in} + 36 \text{ in} + 36 \text{ in} = 128 \text{ in}$.
9. **b.** To find the total weight, add up the pounds and ounces separately. The sum of the pounds is $5 \text{ lbs} + 7 \text{ lbs} + 14 \text{ lbs} = 26 \text{ lbs}$. Next, add the ounces from each bin, $6 \text{ oz} + 12 \text{ oz} + 4 \text{ oz} = 22 \text{ oz}$. Since there are 16 oz in 1 lb, 22 oz is equal to 1 lb and 6 oz. Add this number to the total pounds from the first step; $26 \text{ lbs} + 1 \text{ lb } 6\text{oz} = 27 \text{ lbs } 6 \text{ oz}$.
10. **d.** First, convert the dimensions into inches; wall = 12 ft 2 in. There are 12 inches in a foot, so $12 \text{ ft} \times 12 \text{ in/ft} = 144$ inches. Don't forget to add the extra two inches from the original measurement; wall = $144 \text{ in} + 2 \text{ in} = 146 \text{ in}$; headboard = 6ft 6 in; $6 \text{ ft} \times 12 \text{ in/ft} = 72 \text{ in}$; headboard = $72 \text{ in} + 6 \text{ in} = 78 \text{ in}$. Now subtract the width of the headboard from the width of the wall; $146 \text{ in} - 78 \text{ in} = 68 \text{ in}$. There needs to be an equal amount of room on either side of

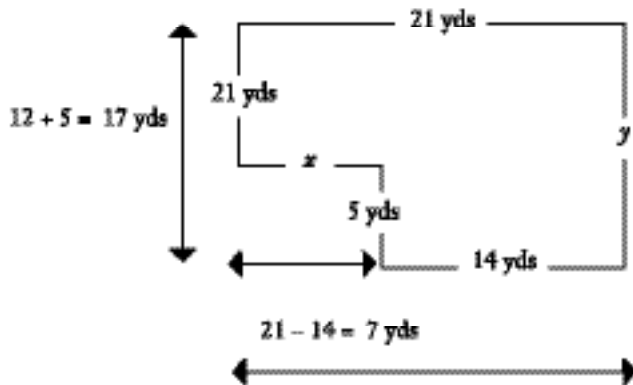
the headboard, so divide this number by 2; $68 \text{ in} \div 2 = 34 \text{ in}$. Convert this value back into ft; $34 \text{ in} \div 12 \text{ in/ft} = 2 \text{ ft}$ with a remainder of 10 inches.



11. d. Based on the given values for the length and width of the tables, the measurements of each side can be calculated. To find the perimeter of each set-up, add the lengths of each side making sure not to include the value of the sides that do not contribute to the outside of the set-up. Add up the four sides to get the perimeter; $A = 18 + 3 + 18 + 3 = 42 \text{ ft}$; $B = 6 + 9 + 6 + 9 = 30 \text{ ft}$. Find the difference by subtracting; $42 \text{ ft} - 30 \text{ ft} = 12 \text{ ft}$.



- 12. c.** To find the perimeter, add the length of each side. There are six sides total, but only four values are given. The missing measurements can be calculated. The value for y is the sum of the two length measurements; $12 \text{ yds} + 5 \text{ yds} = 17 \text{ yds}$. The value for x is found by subtracting the width of the value given from the entire width; $21 \text{ yds} - 14 \text{ yds} = 7 \text{ yds}$. To find the perimeter, add up the values of all 6 sides; $21 + 17 + 14 + 5 + 7 + 12 = 76 \text{ yds}$.



- 13. c.** Convert the values to a single unit. There are 3 ft in a yd, so $2 \text{ yds} \times 3 \text{ ft/yard} = 6 \text{ feet}$, and $4 \text{ yds} \times 3 \text{ ft/yard} = 12 \text{ feet}$. Now, convert feet to inches. There are 12 inches per 1 foot, so $6 \text{ feet} \times 12 \text{ in/ft} = 72 \text{ in}$, and $12 \text{ feet} \times 12 \text{ in/ft} = 144 \text{ in}$. Therefore, the patio is 72 inches by 144 inches. To figure out the area of the patio, multiply the length times the width; $72 \text{ in} \times 144 \text{ in} = 10,368 \text{ in}^2$. The surface area of each tile is $3'' \times 3'' = 9 \text{ in}^2$. Divide the total surface area of the patio by the surface area of an individual tile to figure out how many tiles are needed. Thus, $10,368 \text{ in}^2 \div 9 \text{ in}^2/\text{tile} = 1,152 \text{ tiles}$.
- 14. a.** First calculate the weight cost; $215 \text{ lbs} \times \$0.40/\text{lb} = \86 . The next step is to calculate the distance cost. Convert the 88 km into miles; $88 \text{ km} \div 1.6 \text{ km/mile} = 55 \text{ miles}$. The company charges \$0.35 per mile; $55 \text{ miles} \times \$0.35 = \$19.25$. Add the weight cost to the distance cost to get the total; $\$86 + \$19.25 = \$105.25$.
- 15. b.** First, convert 0.90 m to cm; $.90 \text{ m} \times 100 \text{ cm/m} = 90 \text{ cm}$. So, the width is 90 cm and the length is twice the width, or 180 cm ($90 \text{ cm} \times 2$). Since the answer must be in inches, the measurements must be converted from centimeters to inches. There are 2.54 cm for every 1 inch; width = $90 \text{ cm} \div 2.54 \text{ cm/in} = 35.4 \text{ inches}$, to the nearest tenth.; length = $180 \text{ cm} \div 2.54 \text{ cm/in} = 70.9 \text{ inches}$, to the nearest tenth.