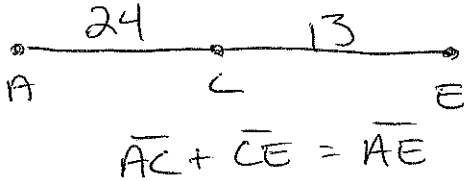
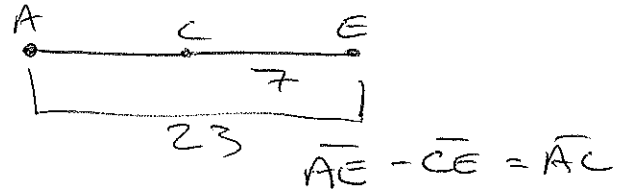


C is between A and E. For each problem, draw a picture representing the three points and the information given. Solve for indicated.

1. If $AC = 24$ in. and $CE = 13$ in., $AE = \underline{27}$ in

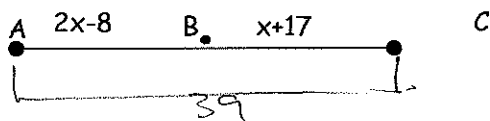


2. If $CE = 7$ in. and $AE = 23$ in., $AC = \underline{16}$ in



Refer to the figure and the given information to find each measure.

3. Given: $AC = 39$ m



$$2x - 8 + x + 17 = 39$$

$$3x + 9 = 39$$

$$3x = 30$$

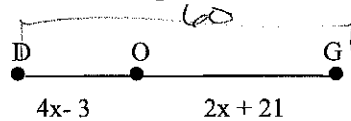
$$x = 10$$

$x = \underline{10}$

$AB = \underline{12}$

$BC = \underline{\hspace{2cm}}$

4. Given the figure and $DG = 60$ ft.



$$4x - 3 + 2x + 21 = 60$$

$$6x + 18 = 60$$

$$6x = 42$$

$$x = 7$$

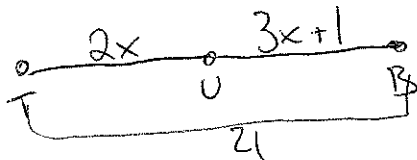
$x = \underline{7}$

$DO = \underline{25}$

$OG = \underline{35}$

If U is between T and B, find the value of x and the lengths of the segments. (Hint: Draw a picture for each problem with the given information and then write the equation to solve.)

5. $TU = 2x$,
 $UB = 3x + 1$
 $TB = 21$



$x = \underline{4}$

$TU = \underline{8}$

$UB = \underline{13}$

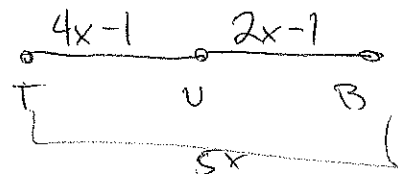
$$2x + 3x + 1 = 21$$

$$5x + 1 = 21$$

$$5x = 20$$

$$x = 4$$

6. $TU = 4x - 1$,
 $UB = 2x - 1$
 $TB = 5x$



$x = \underline{2}$

$TU = \underline{7}$

$UB = \underline{3}$

$TB = \underline{10}$

$$4x - 1 + 2x - 1 = 5x$$

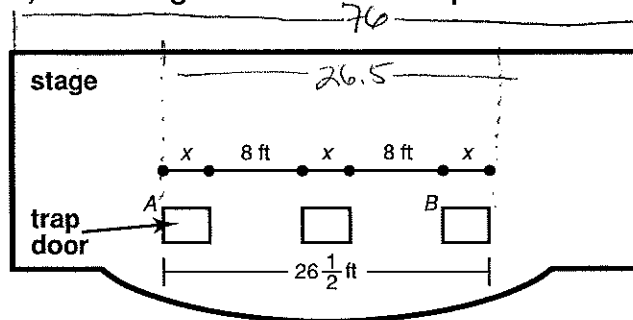
$$6x - 2 = 5x$$

$$x - 2 = 0$$

$$x = 2$$

LESSON 1-2 **Problem Solving**
Measuring and Constructing Segments

For Exercises 1 and 2, use the figure. It shows the top view of a stage that has three trap doors.



1. The total length of the stage is 76 feet. If the trap doors are centered across the stage, what is the distance from the left side of the stage to the first trap door?

$$76 - 26.5 = 49.5$$

$$49.5 \div 2 = 24.75 \text{ ft}$$

2. An actor starts at point A, walks across the stage, and then stops at point B before disappearing through the trap door. How far does he walk across the stage?

$$3.5 + 8 + 3.5 + 8 = 23 \text{ ft}$$

$$2(8) + 3(x) = 26.5$$

$$16 + 3x = 26.5$$

$$3x = 10.5$$

$$x = 3.5$$

3. Anna is 26 feet high on a rock-climbing wall. She descends to the 15-foot mark, rests, and then climbs down until she reaches her friend, who is 8 feet from the ground. How many feet has Anna descended?

$$11 + 7 = 18 \text{ ft}$$



4. Jamilla has a piece of ribbon that is 48.5 centimeters long. For her scrapbook, she cuts it into two pieces so that one piece is 4 times as long as the other. What are the lengths of the pieces?

$$l + 4l = 48.5, 5l = 48.5$$

$$l = 9.7 \text{ cm}$$

$$4l = 38.8 \text{ cm}$$

Choose the best answer.

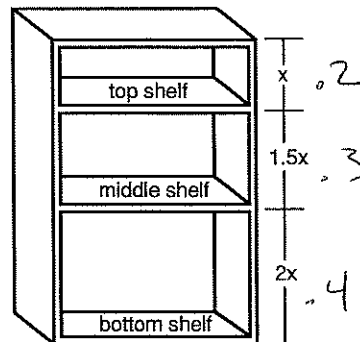
5. Jordan wants to adjust the shelves in his bookcase so that there is twice as much space on the bottom shelf as on the top shelf, and one and a half times more space on the middle shelf as on the top shelf. If the total height of the bookcase is 0.9 meter, how much space is the middle shelf on?

- A 0.2 m C 0.4 m
 B 0.3 m D 0.5 m

$$x + 1.5x + 2x = .9 \text{ m}$$

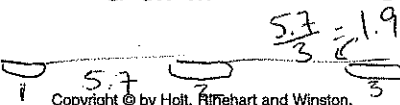
$$4.5x = .9$$

$$x = .2$$



6. In a rowing race, the distance between the teams in first and second place is 5.7 meters. The distance between the teams in second and third place is one-third that distance. How much farther ahead is the team in first place than the team in third?

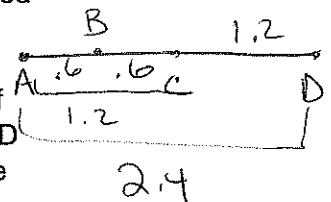
- F 7.6 m H 2.5 m
 G 5.7 m J 1.9 m



$$5.7 + 1.9 = 7.6$$

7. On a subway route, station C is located at the midpoint between stations A and D. Station B is located at the midpoint between stations A and C. If the distance between stations A and D is 2.4 kilometers, what is the distance between stations B and D?

- A 0.3 km C 1.2 km
 B 0.6 km D 1.8 km



$$.6 + 1.2 = 1.8$$