Use the diagram to decide whether the statement is *true* or *false*.
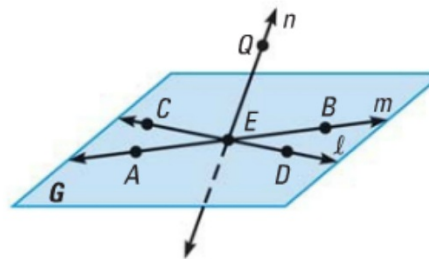
1. Point *A* lies on line *m*.

2. Point *D* lies on line *n*.

3. Points *B, C, E,* and *Q* are coplanar.

4. Points *C, E,* and *B* are collinear.

5. Another name for plane *G* is plane *QEC*.

① T ③ F ⑤ F

② F ④ F

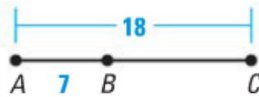**Find the indicated length.**

6. Find *HJ*.

52

H   J   30   K

7. Find *BC*.

18

A   7   B   C

8. Find *XZ*.

X   26   Y   45   Z

HJ= 52-30

HJ= 22

BC= 18-7

BC= 11

XZ= 26+45

XZ= 71

In Exercises 9–11, find the distance between the two points.

9. $T(3, 4)$ and $W(2, 7)$ **10.** $C(5, 10)$ and $D(6, -1)$ **11.** $M(-8, 0)$ and $N(-1, 3)$

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$d = \sqrt{(2-3)^2 + (7-4)^2}$

$d = \sqrt{(-1)^2 + (3)^2}$

$d = \sqrt{1+9}$

$d = \sqrt{10}$

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$d = \sqrt{(6-5)^2 + (-1-10)^2}$

$d = \sqrt{(1)^2 + (-11)^2}$

$d = \sqrt{1 + 121}$

$d = \sqrt{122}$

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

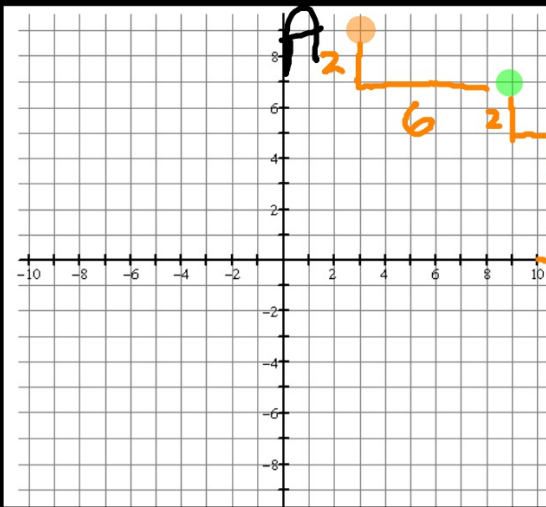$d = \sqrt{(-1+8)^2 + (3-0)^2}$

$d = \sqrt{(7)^2 + (3)^2}$

$d = \sqrt{49+9}$

$d = \sqrt{58}$

12. The midpoint of $\overline{AB}$ is $M(9, 7)$. One endpoint is $A(3, 9)$. Find the coordinates of endpoint B.

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_2 + y_1}{2}\right)$$

$(15, 5)$

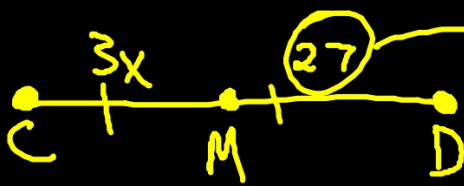$9 = \frac{3+x}{2} \qquad 7 = \frac{9+y_1}{2}$

$18 = 3+x \qquad 14 = 9+y_1$

$15 = x \qquad 5 = y$

other ENDPT → $(15, 5)$

$3x = 27$

$x = 9$

13. Line t bisects $\overline{CD}$ at point M, $CM = 3x$, and $MD = 27$. Find CD.
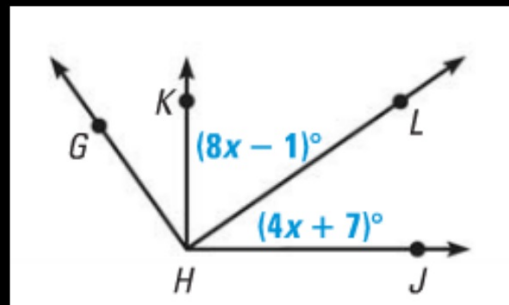
$3x$ (27) → Both halves are 27.

$\therefore CD = 54$

C M D

In Exercises 14 and 15, use the diagram.

14. Trace the diagram and extend the rays. Use a protractor to measure $\angle GHJ$. Classify it as *acute*, *obtuse*, *right*, or *straight*.
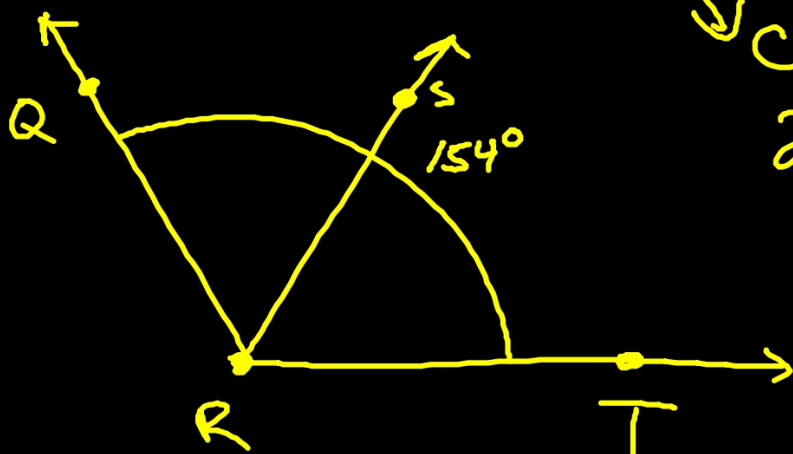
15. Given $m\angle KHJ = 90°$, find $m\angle LHJ$.

(14) obtuse

(15) $8x-1 + 4x+7 = 90$

$12x+6 = 90$

$12x = 84$

$x = 7$

$m\angle LHJ = 4x+7$

$= 4(7)+7$

$= 28+7$

$= 35°$

16. The measure of $\angle QRT$ is 154°, and $\overrightarrow{RS}$ bisects $\angle QRT$. What are the measures of $\angle QRS$ and $\angle SRT$?

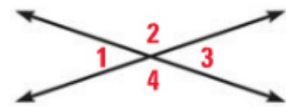Chops in $\frac{1}{2}$
2 = parts

$m\angle QRS = m\angle SRT$

$\frac{154}{2} = 77$

$77 = m\angle QRS = m\angle SRT$

In Exercises 17 and 18, use the diagram at the right.

17. Name four linear pairs.

18. Name two pairs of vertical angles.

(17) 1, 2
2, 3
3, 4
4, 1

(18) 1, 3
2, 4

19. The measure of an angle is 64°. What is the measure of its complement? What is the measure of its supplement?

sum of 180

Adds to 90°

The complement is 26°.

The supplement is 116°.

$$180 \\ -\ 64 \\ \overline{116}$$

$$90 \\ -64 \\ \overline{26}$$