e the diagram below to answer the questions 1-4.
w the calculation that you used to obtain your answer.

$$\text{A} \quad \text{B} \qquad \text{C} \quad \text{D} \quad \text{E} \qquad \text{F} \quad \text{G} \quad \text{H} \quad \text{I}$$

-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9
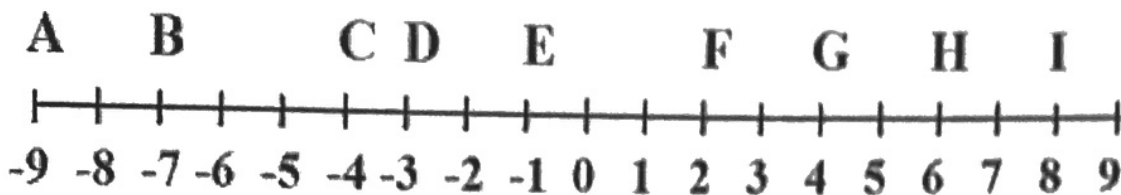
1. What is the distance between points C and H? $|-4-6| = 10$

2. What is the distance between points I and A? $|8-(-9)| = 17$

3. What is the distance between points G and C? $|4-(-4)| = 8$

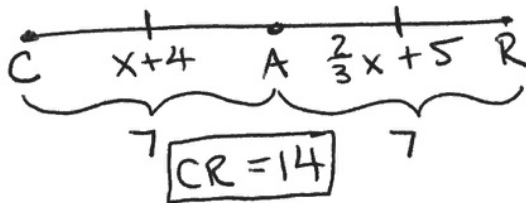4. What is the distance between points B and G? $|-7-4| = 11$

5. Solve for x.

$$\begin{array}{ccc} & 13 & 6 & 2x-18 \\ S & \rule{3cm}{0.4pt} & & V \\ & & T \quad U & \\ & & 4x-29 & \end{array}$$
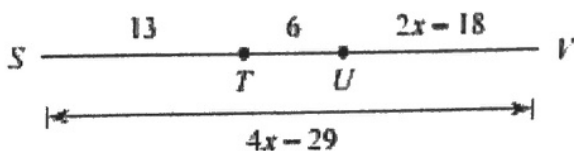
$13+6+2x-18 = 4x-29$

$2x+1 = 4x-29$

$30 = 2x$

$\boxed{15 = x}$

6. A is the midpoint of $\overline{CR}$. If $CA = x + 4$ and $AR = \frac{2}{3}x + 5$, find the length of $\overline{CR}$.
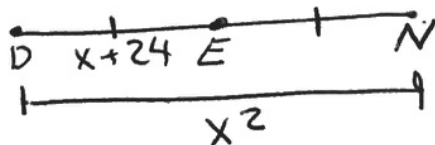
$$\underbrace{\overset{C \quad x+4}{\qquad}}_{7} \quad A \quad \underbrace{\frac{2}{3}x+5 \quad R}_{7}$$

$\boxed{CR = 14}$

$x+4 = \frac{2}{3}x+5$

$3 \cdot \frac{1}{3}x = 1 \cdot 3$

$x = 3$

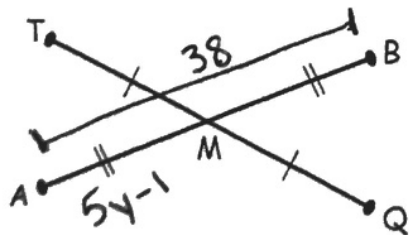7. E is the midpoint of $\overline{DN}$. If $DN = x^2$ and $DE = x + 24$. Solve for the positive value of x.

$$\begin{array}{ccc} D & x+24 & E & N \\ \hline & & x^2 & \end{array}$$

$2(x+24) = x^2$

$2x+48 = x^2$

$0 = x^2 - 2x - 48$

$0 = (x-8)(x+6)$

$x-8=0 \quad | \quad x+6=0$

$\boxed{x=8} \quad \quad x = -6$

8. If $AM = 5y - 1$, $AB = 38$, find the value of y.

$2(5y-1) = 38$

$10y - 2 = 38$

$10y = 40$

$\boxed{y = 4}$

4