Topic: Length of a line segment

Question: Points A, B, C, D and E lie, in order from left to right, on a number line. Where on the number line does E lie?

$\overline{AC} = 5$, $\overline{BC} = 3$, $\overline{BD} = 7$, and $\overline{BE} = 9$.

C is at 0.

Answer choices:

A -4

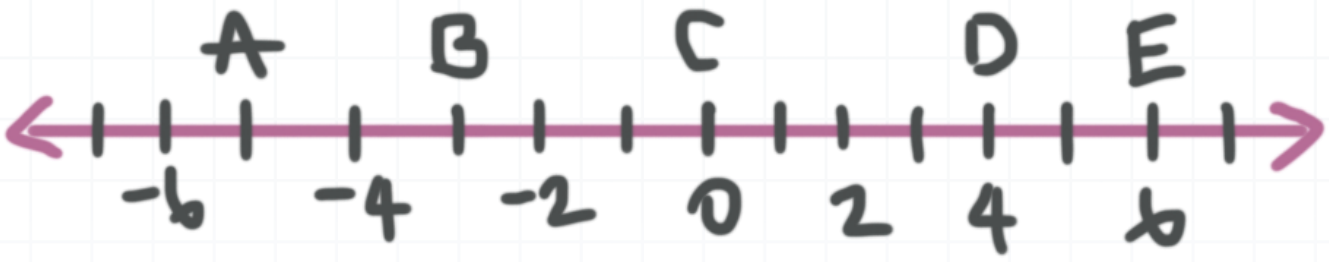
B 2

C 5

D 6

Solution: D

We know point C is at 0 and $\overline{BC} = 3$, which lets us locate point B at -3.



Since B is at -3 and $\overline{BE} = 9$, point E is at a distance of 9 to the right of -3. Which puts E at 6 on the number line.

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Question: If $W = -4$, $X = -2$, $Y = 3$, and $Z = 6$ on a number line, then what is the value of $\overline{XZ} - \overline{WY}$?

Answer choices:

A 1

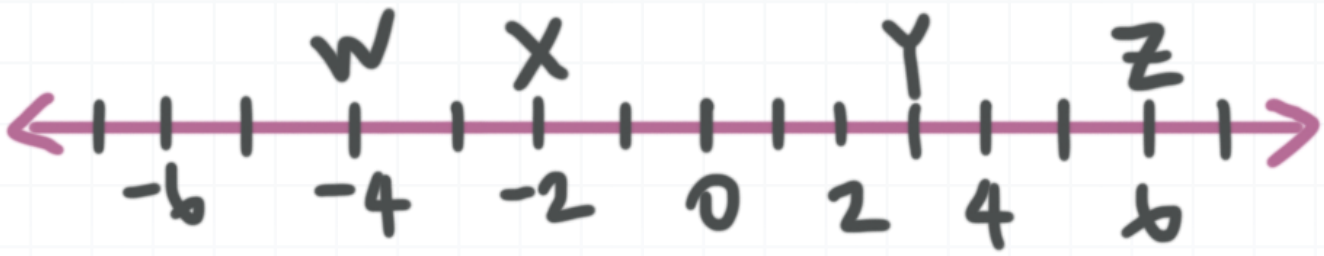
B 2

C 3

D 4

Solution: A

Let's plot the given points on a number line.



We see that

$$\overline{XZ} = |6 - (-2)| = 8$$

$$\overline{WY} = |3 - (-4)| = 7$$

Therefore,

$$\overline{XZ} - \overline{WY} = 8 - 7 = 1$$

Topic: Length of a line segment

Question: Points N, P, and R lie, in order from left to right, on a number line. $\overline{NP}$ is four less than twice $\overline{PR}$. If $\overline{NP} = 2$, what is the value of $\overline{NR}$?

Answer choices:

A 5

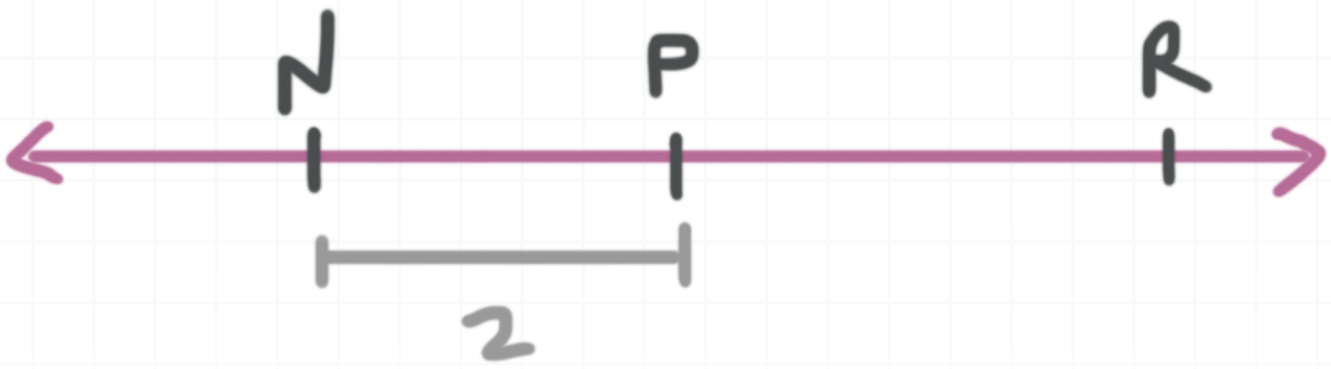
B 4

C 3

D 6

Solution: A

Let's use a number line to show what we know.



Now let $x = \overline{PR}$. We know that $\overline{NP}$ is four less than twice $\overline{PR}$, so $\overline{NP} = 2x - 4$. We also know that $\overline{NP} = 2$, so we can write

$$2x - 4 = 2$$

$$2x = 6$$

$$x = 3$$

So $\overline{PR} = 3$. Therefore,

$$\overline{NR} = \overline{NP} + \overline{PR}$$

$$\overline{NR} = 2 + 3$$

$$\overline{NR} = 5$$