Bellwork Alg 2B 6th hr Wednesday, November 15, 2017

Use the two formulas and the points given to answer the questions.

Distance Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ Midpoint Formula: $Midpoint : \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

Points: $A(12,-7)$ $B(-3,4)$ $C(5,7)$ $D(-8,-2)$ $E(13,1)$

Find the EXACT length of each segment.

1. AC

2. AD

3. CE

4. BD

Find the midpoint of each segment.

5. CD

6. DE

7. AC

Bellwork Alg 2B 6th hr Wednesday, November 15, 2017 Answers

Use the two formulas and the points given to answer the questions.

Distance Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ Midpoint Formula: $Midpoint: \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

Points: $A(12,-7)$ $B(-3,4)$ $C(5,7)$ $D(-8,-2)$ $E(13,1)$

Find the EXACT length of each segment.

1. AC

$d = \sqrt{(12-5)^2+(7--7)^2}$

$= \sqrt{7^2+14^2}$

$= \sqrt{49+196}$

$= \sqrt{245}$

$= \sqrt{49 \cdot 5}$

$= 7\sqrt{5}$

2. AD

$d = \sqrt{(12--8)^2+(-2--7)^2}$

$= \sqrt{20^2+5^2}$

$= \sqrt{400+25}$

$= \sqrt{425}$

$= \sqrt{25 \cdot 17}$

$= 5\sqrt{17}$

3. CE

$d = \sqrt{(13-5)^2+(7-1)^2}$

$= \sqrt{8^2+6^2}$

$= \sqrt{64+36}$

$= \sqrt{100}$

$= 10$

4. BD

$d = \sqrt{(-3--8)^2+(4--2)^2}$

$= \sqrt{5^2+6^2}$

$= \sqrt{25+36}$

$= \sqrt{61}$

Find the midpoint of each segment.

5. CD

$\left(\frac{5+-8}{2}, \frac{7+-2}{2}\right)$

$\left(\frac{-3}{2}, \frac{5}{2}\right)$

or

$(-1.5, 2.5)$

6. DE

$\left(\frac{13+-8}{2}, \frac{-2+1}{2}\right)$

$\left(\frac{5}{2}, -\frac{1}{2}\right)$

or

$(2.5, -0.5)$

7. AC

$\left(\frac{12+5}{2}, \frac{7+-7}{2}\right)$

$\left(\frac{17}{2}, \frac{0}{2}\right)$

$\left(\frac{17}{2}, 0\right)$

or

$(8.5, 0)$