Bellwork   Geometry   Tuesday, January 21, 2020

Use these formulas: Slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$ Distance Formula: $d = \sqrt{(x-x)^2 + (y-y)^2}$

Use these given points: $A(8,-12)$ $B(32,20)$ $C(-40,24)$ $D(32,-80)$ $E(-16,-44)$

Find the slope and length (distance formula) of each of the segments below. Round length to the nearest hundredth and reduce the slope.

$\overline{AB}$	$\overline{BC}$	$\overline{CD}$
Length	Length	Length
Slope	Slope	Slope

$\overline{DE}$	$\overline{EA}$
Length	Length
Slope	Slope

1. Which segments are parallel?

2. Which segments are perpendicular?

3. Which segments are congruent?

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Use these given points: $A(8, -12)$ $B(32, 20)$ $C(-40, 24)$ $D(32, -80)$ $E(-16, -44)$

Find the slope and length (distance formula) of each of the segments below. Round length to the nearest hundredth and reduce the slope.

$\overline{AB}$

Length
$$= \sqrt{(32-8)^2 + (20--12)^2}$$
$$= \sqrt{24^2 + 32^2}$$
$$= \sqrt{1600} = \boxed{40}$$

Slope
$$= \frac{20--12}{32-8} = \frac{32}{24} = \boxed{\frac{4}{3}}$$

$\overline{BC}$

Length
$$= \sqrt{(32--40)^2 + (24-20)^2}$$
$$= \sqrt{72^2 + 4^2}$$
$$= \boxed{\sqrt{5200}} \approx 72.11$$

Slope
$$= \frac{24-20}{-40-32} = \frac{4}{-72} =$$
$$= \boxed{-\frac{1}{18}}$$

$\overline{CD}$

Length
$$\sqrt{(24--80)^2 + (32--40)^2}$$
$$= \sqrt{104^2 + 72^2}$$
$$= \boxed{\sqrt{16000}} \approx 126.49$$

Slope
$$= \frac{24--80}{-40-32} = \frac{104}{-72} =$$
$$= \boxed{\frac{-13}{9}}$$

$\overline{DE}$

Length
$$= \sqrt{(32--16)^2 + (-44--80)^2}$$
$$= \sqrt{48^2 + 36^2} = \sqrt{3600}$$
$$= \boxed{60}$$

Slope
$$= \frac{-44--80}{-16-32} = \frac{36}{-48} = \boxed{-3/4}$$

$\overline{EA}$

Length
$$= \sqrt{(8--16)^2 + (-12--44)^2}$$
$$= \sqrt{24^2 + 32^2} = \sqrt{1600} = \boxed{40}$$

Slope
$$= \frac{-12--44}{8--16} = \frac{32}{24} \ne \boxed{\frac{4}{3}}$$

1. Which segments are parallel? $\overline{AB} \parallel \overline{EA}$

2. Which segments are perpendicular? $\overline{AB} \perp \overline{DE}$ and $\overline{EA} \perp \overline{DE}$

3. Which segments are congruent?
$$\overline{AB} \cong \overline{EA}$$