Do-now: Turn in Break Work.

What is a ratio?

"fraction"

a comparison of 2 things

$\frac{a}{b}$ $a:b$ a to b

What is a proportion?

two equal ratios

$$\frac{a}{b} = \frac{c}{d}$$

$$a \cdot d = b \cdot c$$

$$\frac{3x - 13}{x + 40} = \frac{23}{10}$$

$$10(3x - 13) = 23(x + 40)$$

$$30x - 130 = 23x + 920$$

$$30x = 23x + 1050$$

$$7x = 1050$$

$$\boxed{x = 150}$$

SIMILAR "$\sim$"

Same exact shape, but not necessarily the same size.

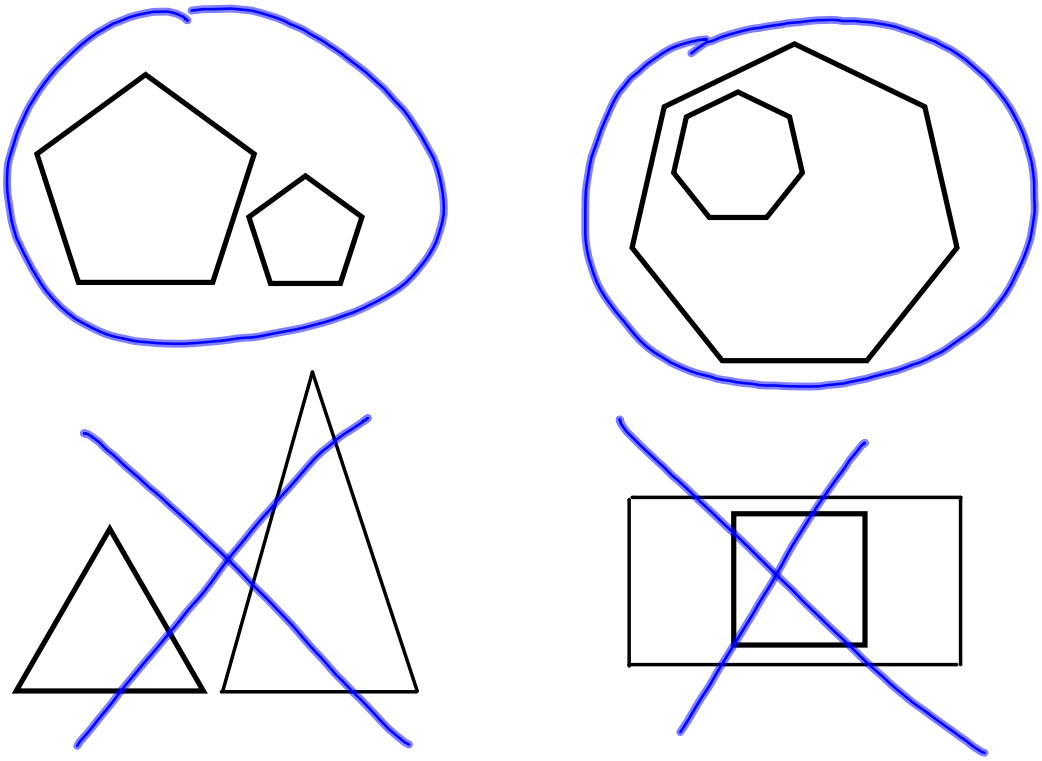
ex: $\triangle ABC \sim \triangle DEF$

Are congruent shapes similar?

Yes!

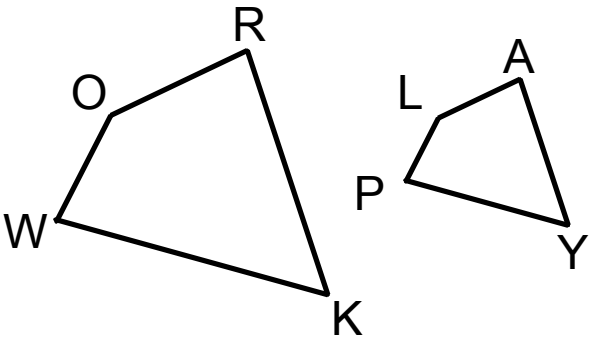
Similarity ratio → 1 : 1

Which pairs of shapes appear to be similar?



What makes polygons similar?

All of the corresponding angles are congruent.
All of the corresponding side lengths are proportional.



$\angle W \cong \angle P$

$\angle O \cong \angle L$

$\angle R \cong \angle A$

$\angle K \cong \angle Y$

WORK ~ PLAY

$$\frac{WO}{PL} = \frac{OR}{LA} = \frac{RK}{AY} = \frac{KW}{YP}$$

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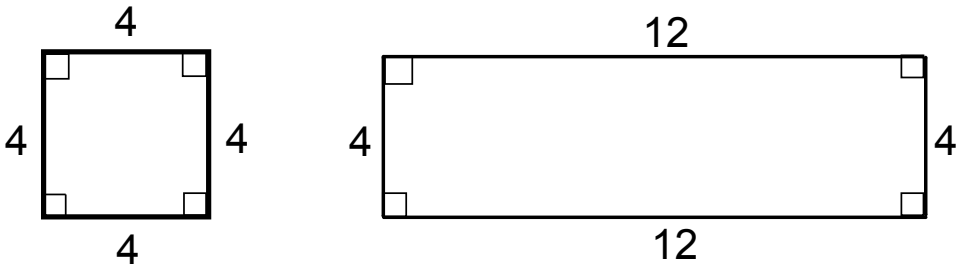
Are the polygons below similar?



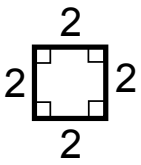
All angles congruent?	Yes
All side lengths proportional?	No

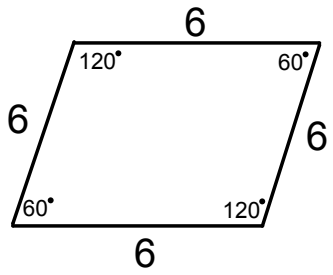
$\frac{4}{4} = \frac{4}{12}$

$16 \neq 48$

Not similar.

Are the polygons below similar?



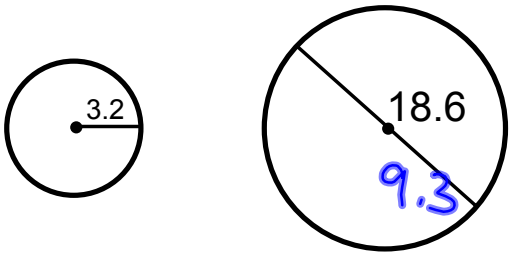


All angles congruent?	No
All side lengths proportional?	Yes

$\frac{2}{6} = \frac{2}{6} = \frac{2}{6} = \frac{2}{6}$

Not similar.

Are the shapes below similar?

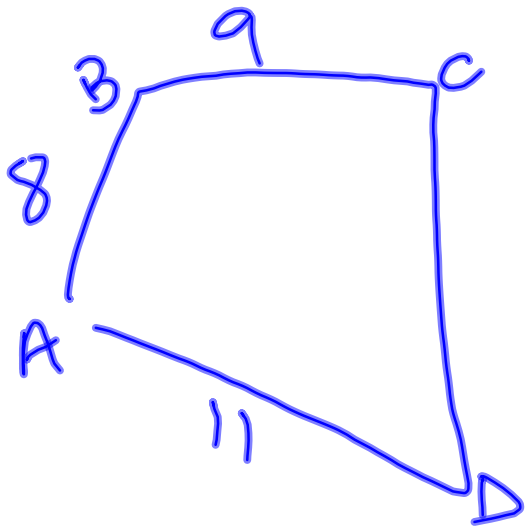


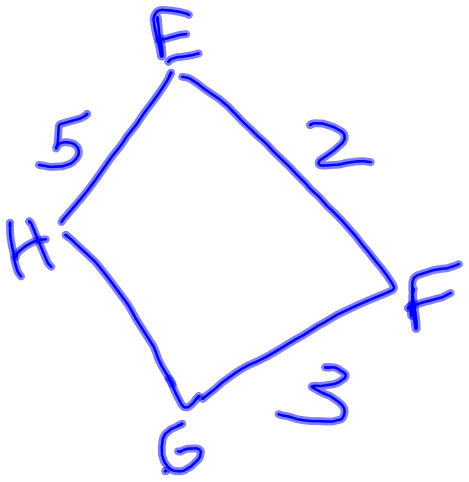
All angles congruent?	Yes
All side lengths proportional?	Yes

$\frac{3.2}{9.3}$

ALL CIRCLES ARE SIMILAR!

~~ABCD ~ EFGH~~





$$\frac{8}{2} = \frac{11}{5} = \frac{9}{3} = \frac{10}{4}$$

$22 \neq 40$

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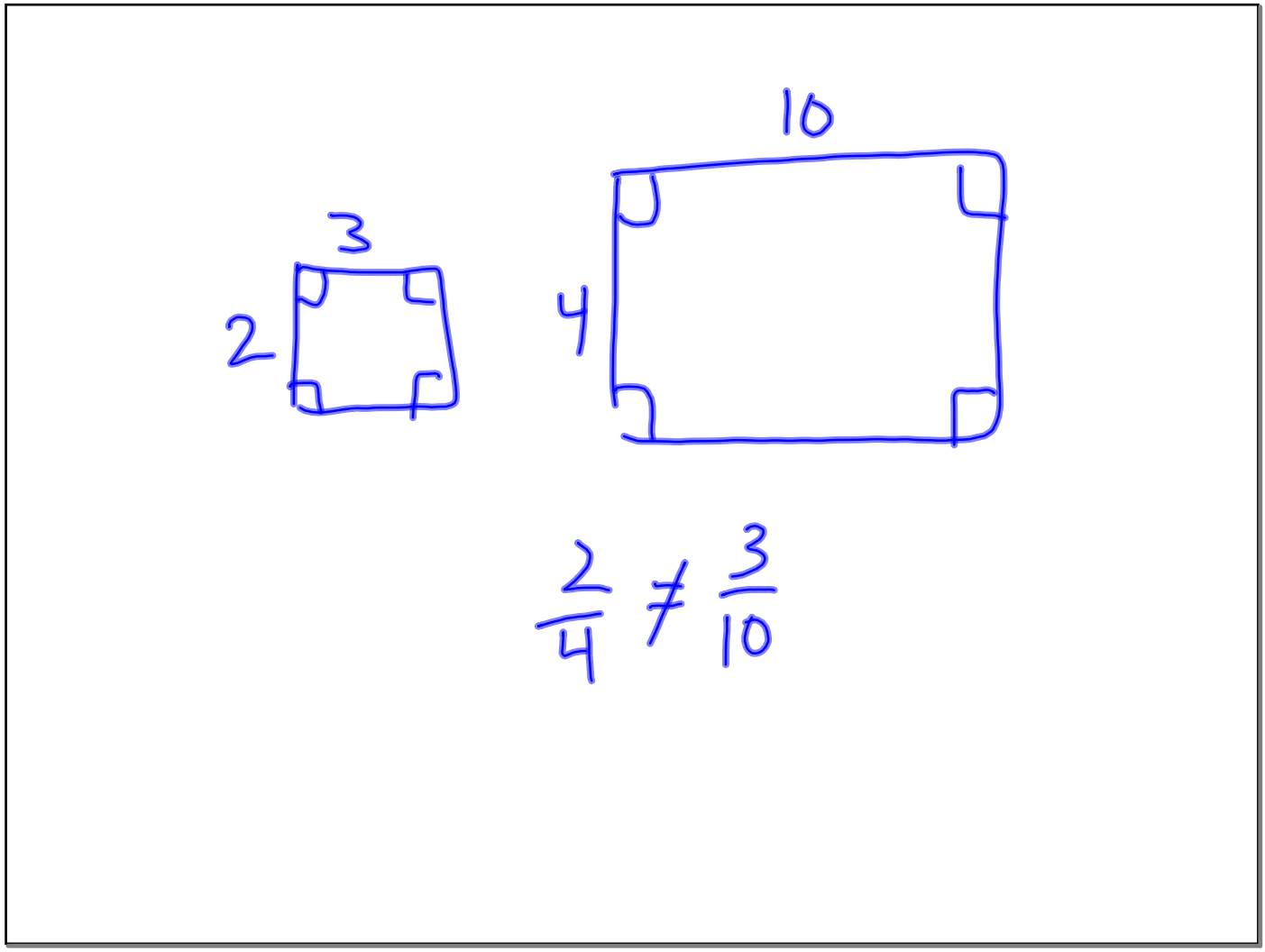

Classwork:

In notebook: page 375 #s 7 - 12

Similarity statement: $ABCD \sim WXYZ$

Similarity ratio: $\frac{3}{4}, \frac{1}{2}, \frac{8}{3}$

7) No; $20/30 \neq 36/52$

8) Yes; QRST ~ XWYZ; 3/4

9) Yes; KLMJ ~ PQNO; 3/5

10) Yes; ABCD ~ FGHE; 4/5

11) No; Corresponding angles are not congruent

12) Yes; ABC ~ FED; 7/5

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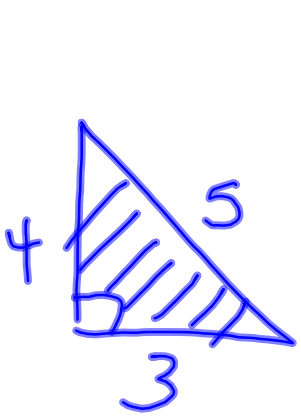

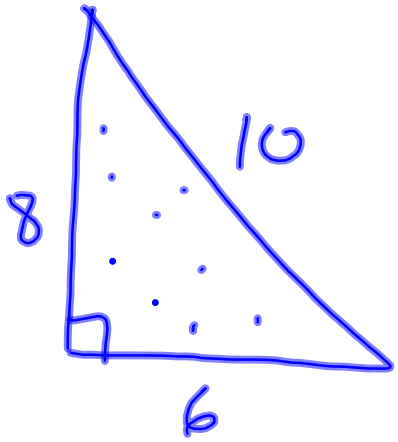

$$\frac{\triangle}{\triangle} \quad \frac{4}{8} = \frac{x}{8} = \frac{3}{6}$$