Warm-Up
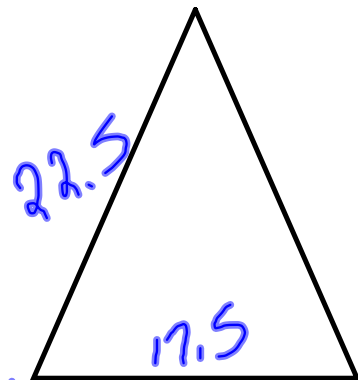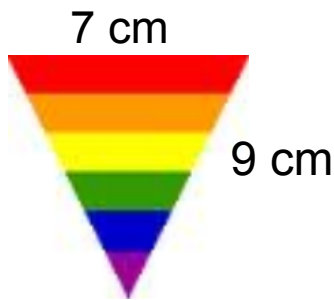
The dimensions for a drawing of a triangle are given. The scale factor used to draw this triangle was 2/5. What were the original dimensions in meters? → 0,4

7 cm

9 cm

22.5

17.5

original X scale factor = reduction

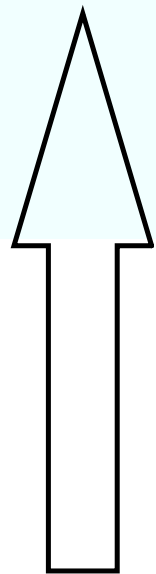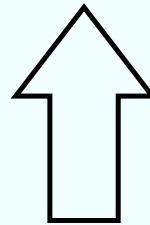# What two pieces of information prove similar shapes?

1:2

$\frac{1}{2}$

1. Ratio of corresponding sides must be the same

2. Corresponding angles must be equal

5. Calculate the value of the variable in each proportion.

a) $\dfrac{x}{2.5} = \dfrac{7.5}{1.5}$ b) $\dfrac{y}{21.4} = \dfrac{23.7}{15.8}$

c) $\dfrac{z}{12.5} = \dfrac{0.8}{1.2}$ d) $\dfrac{a}{0.7} = \dfrac{1.8}{24}$

5. Calculate the value of the variable in each proportion.

a) $\dfrac{x}{2.5} = \dfrac{7.5}{1.5}$ 12.5   b) $\dfrac{y}{21.4} = \dfrac{23.7}{15.8}$ 32.1

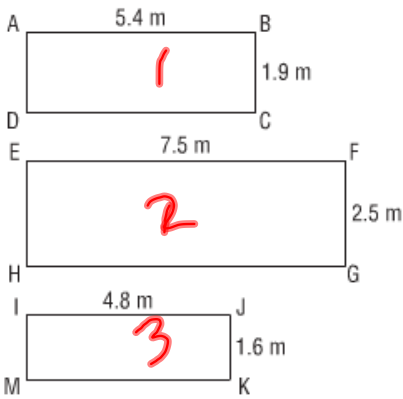c) $\dfrac{z}{12.5} = \dfrac{0.8}{1.2}$ 8.$\overline{3}$ d) $\dfrac{a}{0.7} = \dfrac{1.8}{24}$ 0.0525

$$(12.5)\ \frac{z}{12.5} = \frac{0.8}{1.2}\ (12.5)$$

$$z = 8.\dot{3}$$

9. Are any of these rectangles similar?
Justify your answer.

	5.4 m	
A	1	B
		1.9 m
D		C

	7.5 m	
E	2	F
		2.5 m
H		G

	4.8 m	
I	3	J
		1.6 m
M		K

1 and 2

$$\frac{EF}{AB} = \frac{FG}{BC}$$ Not Similar

$$\frac{7.5}{5.4} = \frac{2.5}{1.9}$$

$$1.388 \neq 1.31578$$

$EFGH \sim IJKM$

2 and 3

$$\frac{EF}{IJ} = \frac{FG}{JK}$$

$$\frac{7.5}{4.8} = \frac{2.5}{1.6}$$

$$1.5625 = 1.5625$$

Not similar

1 and 3

$$\frac{AB}{IJ} = \frac{BC}{JK}$$

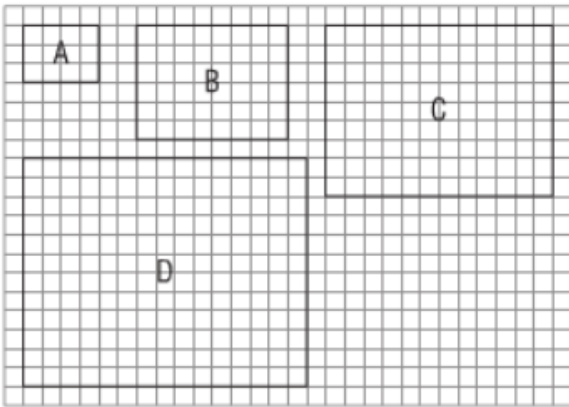$$\frac{5.4}{4.8} = \frac{1.9}{1.6}$$

$$1.125 \neq 1.875$$

4

a) i) Compare the side lengths of rectangles A and B:

$\frac{\text{width of rectangle B}}{\text{width of rectangle A}} = \frac{6}{3}$, or 2

$\frac{\text{length of rectangle B}}{\text{length of rectangle A}} = \frac{8}{4}$, or 2

So, rectangles A and B are similar.

Compare the side lengths of rectangles A and C:

$\frac{\text{width of rectangle C}}{\text{width of rectangle A}} = \frac{9}{3}$, or 3

$\frac{\text{length of rectangle C}}{\text{length of rectangle A}} = \frac{12}{4}$, or 3

So, rectangles A and C are similar.

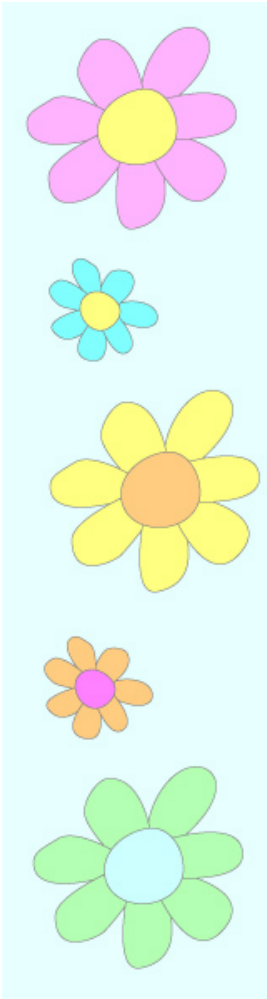Compare the side lengths of rectangles A and D:

$\frac{\text{width of rectangle D}}{\text{width of rectangle A}} = \frac{12}{3}$, or 4

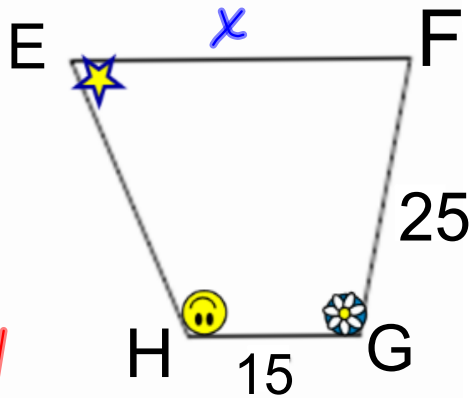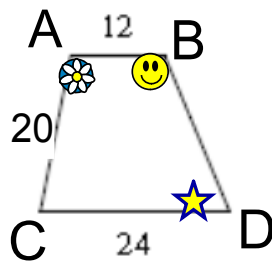$\frac{\text{length of rectangle D}}{\text{length of rectangle A}} = \frac{15}{4}$, or 3.75

So, rectangle D is not similar to the other rectangles.

Justify

Are these two polygons similar? justify

A ―12― B
20
C ―24― D

E ―x― F
25
H ―15― G

Angles

$\angle A = \angle G$
$\angle B = \angle H$
$\angle D = \angle E$
$\angle C = \angle F$

$$\frac{x}{24} = \frac{25}{20}$$

Ratio of corresponding sides

$$\frac{GH}{AB} = \frac{HE}{BD} = \frac{EE}{CD} = \frac{FG}{CA}$$

$$\frac{15}{12} = \frac{HE}{BD} = \boxed{\frac{x=30}{24} = \frac{25}{20}}$$

1.25   1.25   1.25

$$\frac{(24)\,x}{24} = \frac{25\,(24)}{20}$$

$$x = 30$$

Worksheet

1, 2 } Justify

5, 6 }

Pg 352 #5 (a) Justify