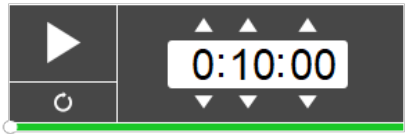
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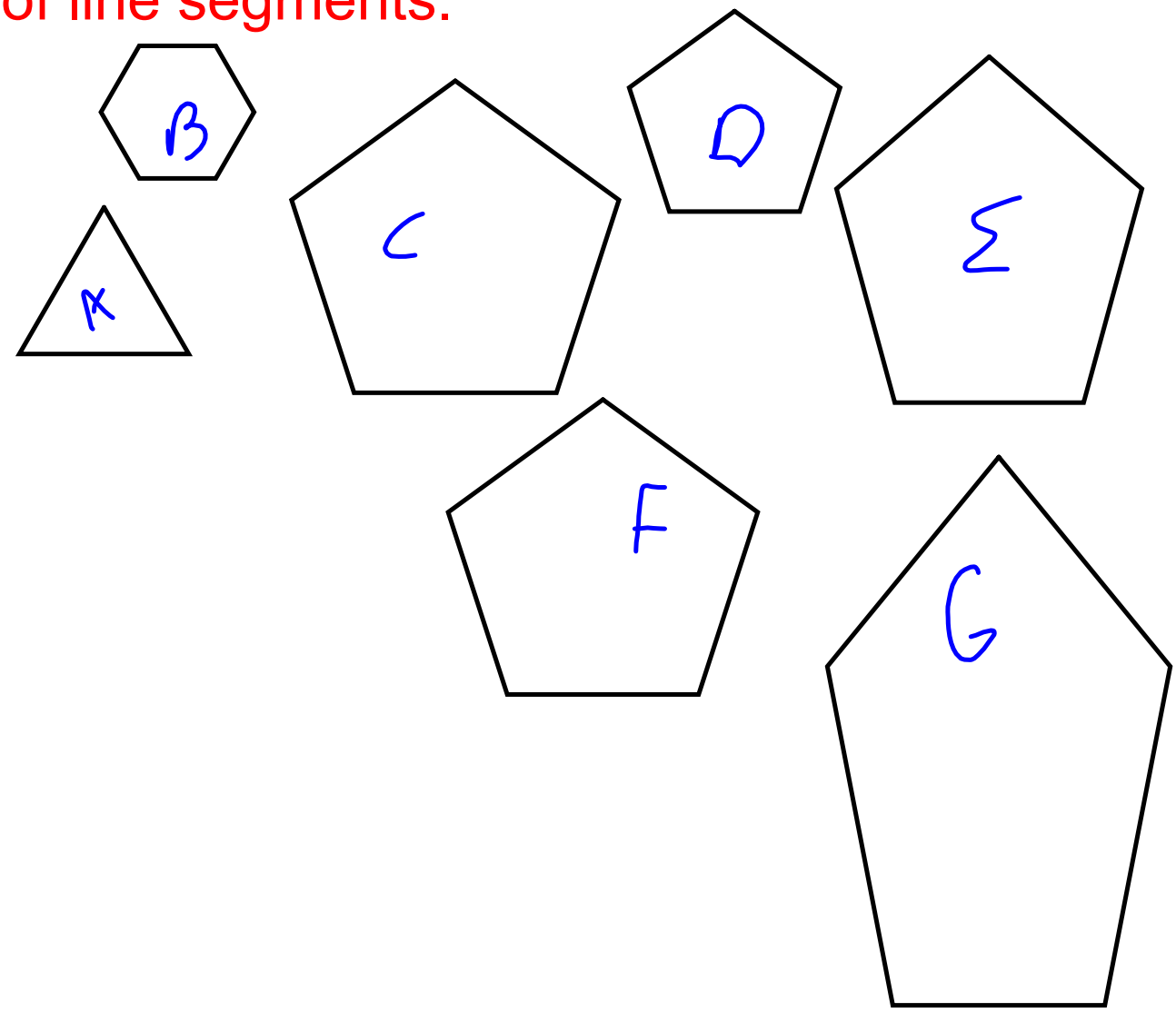
April. 16/18

SECTION 7.3

SIMILAR POLYGONS

Polygon-is a closed figure made up

of line segments.



Scaled diagram

When one polygon is an enlargement or a reduction of another polygon, we say the polygons are **similar**.

Similar polygons have:

1. the same shape, [matching angles to be equal]
2. but not necessarily the same size.

Check Understanding

1. A bunny is 20 cm in a diagram and you want to enlarge the picture by a scale factor of 5.5. What will the size of the bunny be?

New size = SF x original
= 5.5 x 20
= 110 cm

2. Solve

$$\frac{x}{3} = \frac{15}{7.2}$$

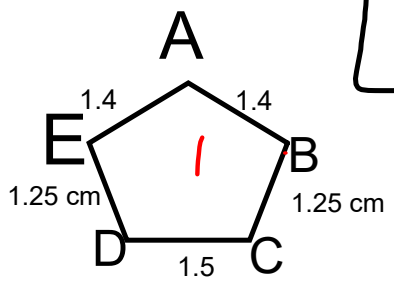
(3) (3)

$\frac{15}{7.2}$

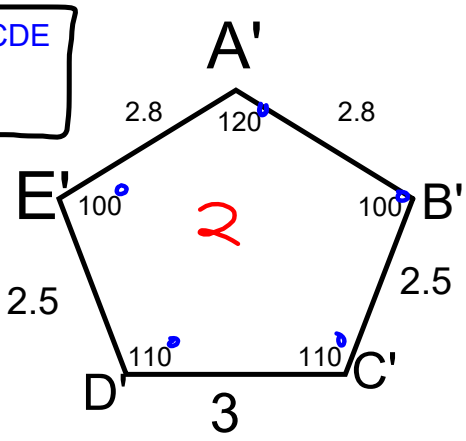
$x = \frac{45}{7.2}$

$x = 6.25$

Pentagon ABCDE is similar to A 'B 'C'D 'E'



matching



prime

List the corresponding sides

AB = 1.4 A'B'=2.8

BC = 1.25 B'C' = 2.5

CD = 1.5 C'D' = 3

DE = 1.25 D'E' = 2.5

EA = 1.4 E'A' = 2.8

Ratio for corresponding sides

$\frac{A'B'}{AB} = \frac{2.8}{1.4} = 2$ $\left\{ \frac{AB}{A'B'} = \frac{1.4}{2.8} = 0.5 \right.$

$\frac{B'C'}{BC} = \frac{2.5}{1.25} = 2$

$\frac{C'D'}{CD} = \frac{3}{1.5} = 2$

$\frac{D'E'}{DE} = \frac{2.5}{1.25} = 2$

$\frac{E'A'}{EA} = \frac{2.8}{1.4} = 2$

List the corresponding angles

$\angle A = \angle A'$

$\angle B = \angle B'$

$\angle C = \angle C'$

$\angle D = \angle D'$

$\angle E = \angle E'$

Similarity statement

$\sim$

$ABCDE \sim A'B'C'D'E'$

$DEABC \sim D'E'A'B'C'$

In similar polygons:

- Pairs of corresponding sides have lengths in the same ratio, that is, the lengths are proportional [same scale factor]

- Corresponding angles are equal

Give a similarity [~] statement