St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

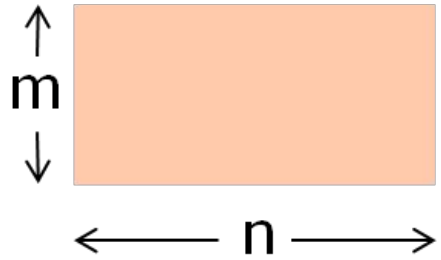
LO: enlarge a shape on a grid when given a scale factor and center of enlargement.

Mental Math

03:00

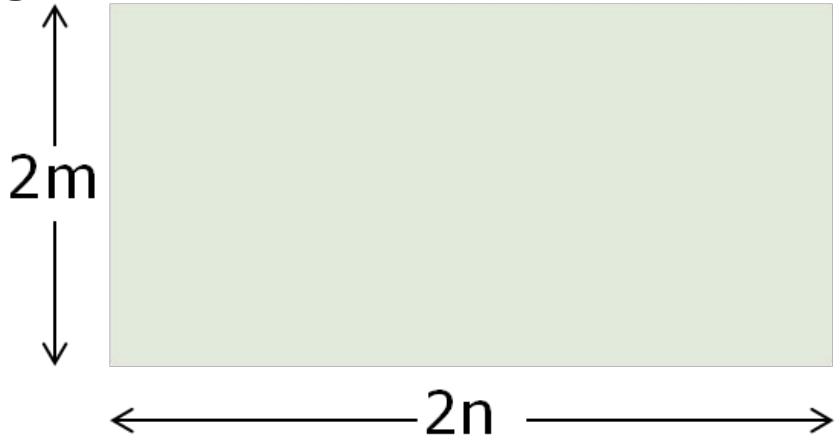
Imagine a rectangle with an area of 20cm²

1.What could its length and width be?
List at least five different combinations.



2. If you enlarge each of your rectangles by a scale factor of 2, what would their new dimensions be?

3. What would their areas be?



Extension - What do you notice?

St. Mary's Catholic High School, Muhaisnah

Enlargement
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LO: **enlarge a shape on a grid when given a scale factor and center of enlargement.**

SUCCESS CRITERIA

I can scale a shape on a grid (without a centre specified);

I can understand that an enlargement is specified by a centre and a scale factor

I can understand that an enlargement is specified by a centre and a fractional scale factor

Enlargement

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LO: enlarge a shape on a grid when given a scale factor and center of enlargement

KEYWORDS:

Transformation, enlargement, scale factor, centre of enlargement, similarity, congruent

KEYWORDS :
Transformation, enlargement, scale factor, centre of enlargement, similarity, congruent

St. Mary's Catholic High School, Muhaisnah

GCSE/iGCSE Assessment Objective Specification - Foundation

- Positive scale factor

d when given a scale factor and center of enlargement.

SPECIFICATION REFERENCES

R6	express a multiplicative relationship between two quantities as a ratio or a fraction
R12	… make links to similarity … and scale factors
G1	use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries; …
G7	identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation, reflection, translation and enlargement (including fractional scale factors)
G24	describe translations as 2D vectors

GCSE/iGCSE Assessment Objective Specification- Higher

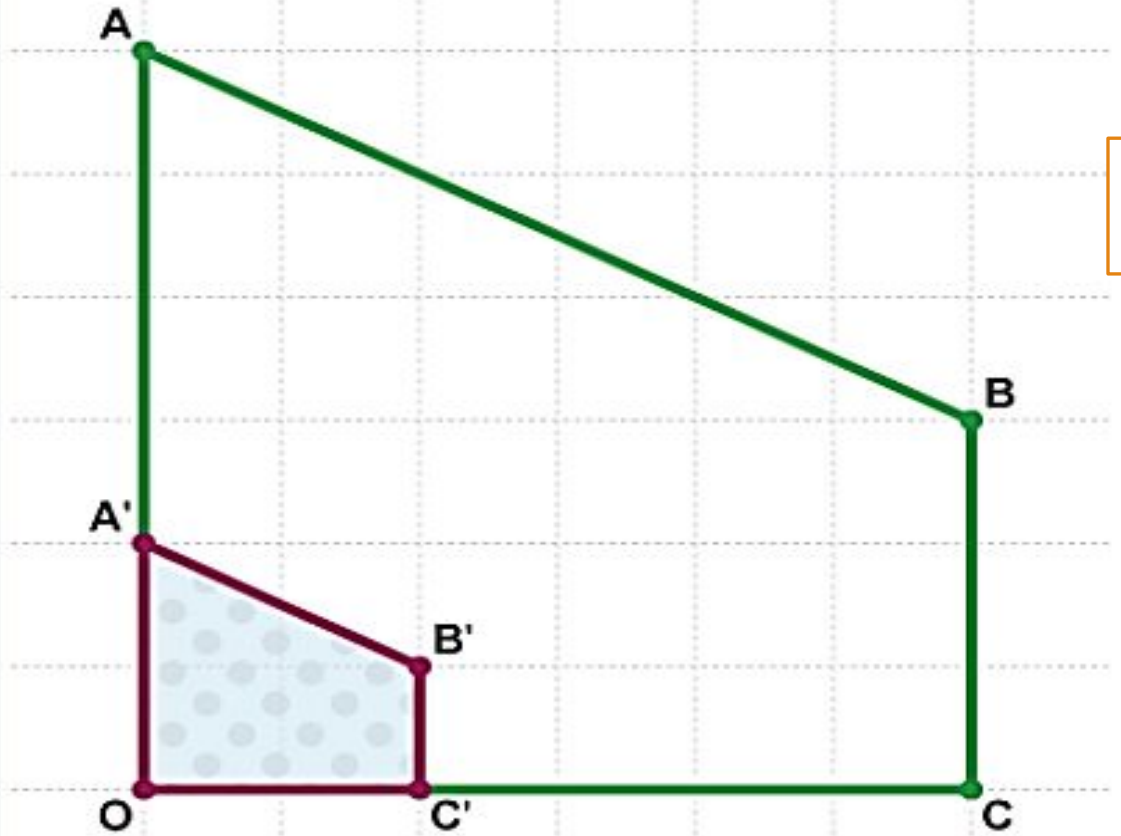
SPECIFICATION REFERENCES

R2	use scale factors, scale diagrams and maps
R6	express a multiplicative relationship between two quantities as a ratio or a fraction
G7	identify, describe and construct congruent and similar shapes, including on a coordinate axis, by considering rotation, reflection, translation and enlargement (including fractional **and negative** scale factors)
G8	**describe the changes and invariance achieved by combinations of rotations, reflections and translations**

St. Mary's Catholic High Schoo

What is the scale factor if shape ABCO is enlarged to form shape A'B'C'O?

Starter



Scale Factor =
2/6 or 1/3 = 1/3

02:00

when given a
largement.

St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

LO: **enlarge a shape on a grid when given a scale factor and center of enlargement.**

Enlargement is a type of transformation.

An enlargement changes the size of an object. The shape stays exactly the same but the size changes.

Enlargements are described using two pieces of information:

- Scale factor – the size of the enlargement
- Centre of enlargement – the position from which the shape is enlarged

St. Mary's Catholic High School, Muhaisnah

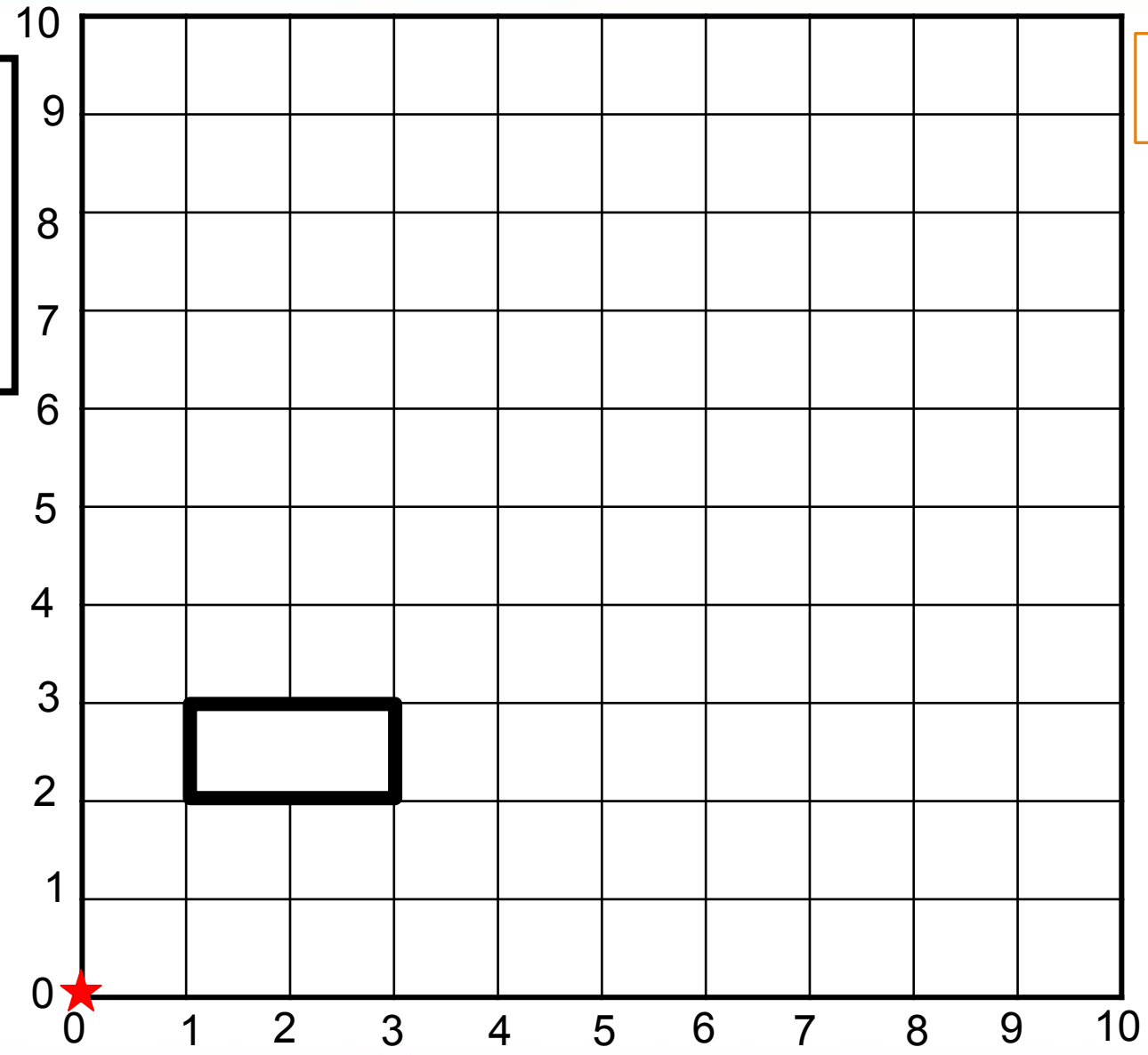
Enlargement
- Positive scale factor

LO: **enlarge a shape on a grid when given a scale factor and center of enlargement.**

Transform this rectangle by the enlargement:

Scale factor 3 from centre (0, 0)

Identify the centre of enlargement.



My Turn

St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

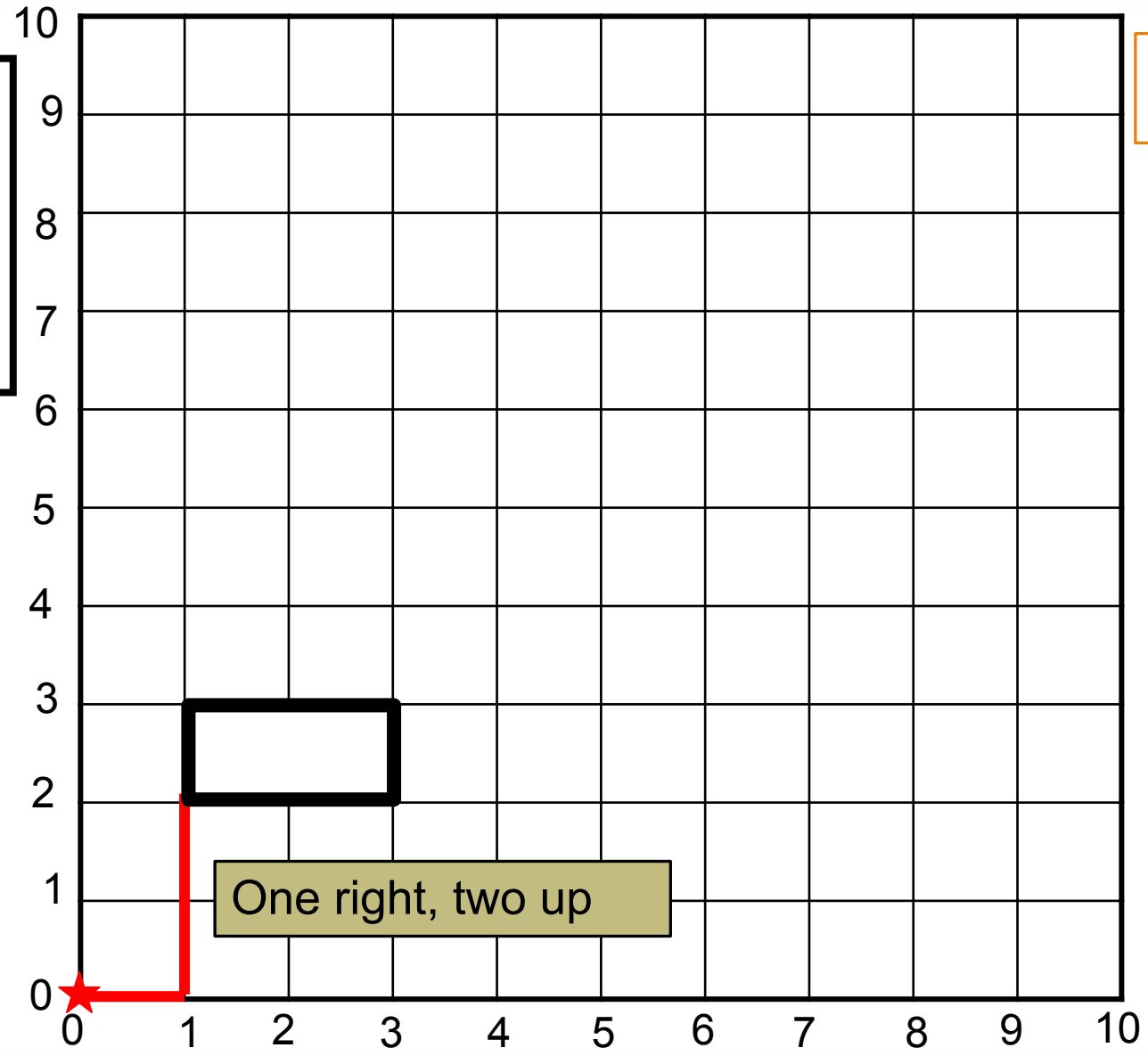
LO: enlarge a shape on a grid when given a scale factor and center of enlargement.

My Turn

Transform this rectangle by the enlargement:

Scale factor 3 from centre (0, 0)

Calculate the distance from the centre to the shape.



St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

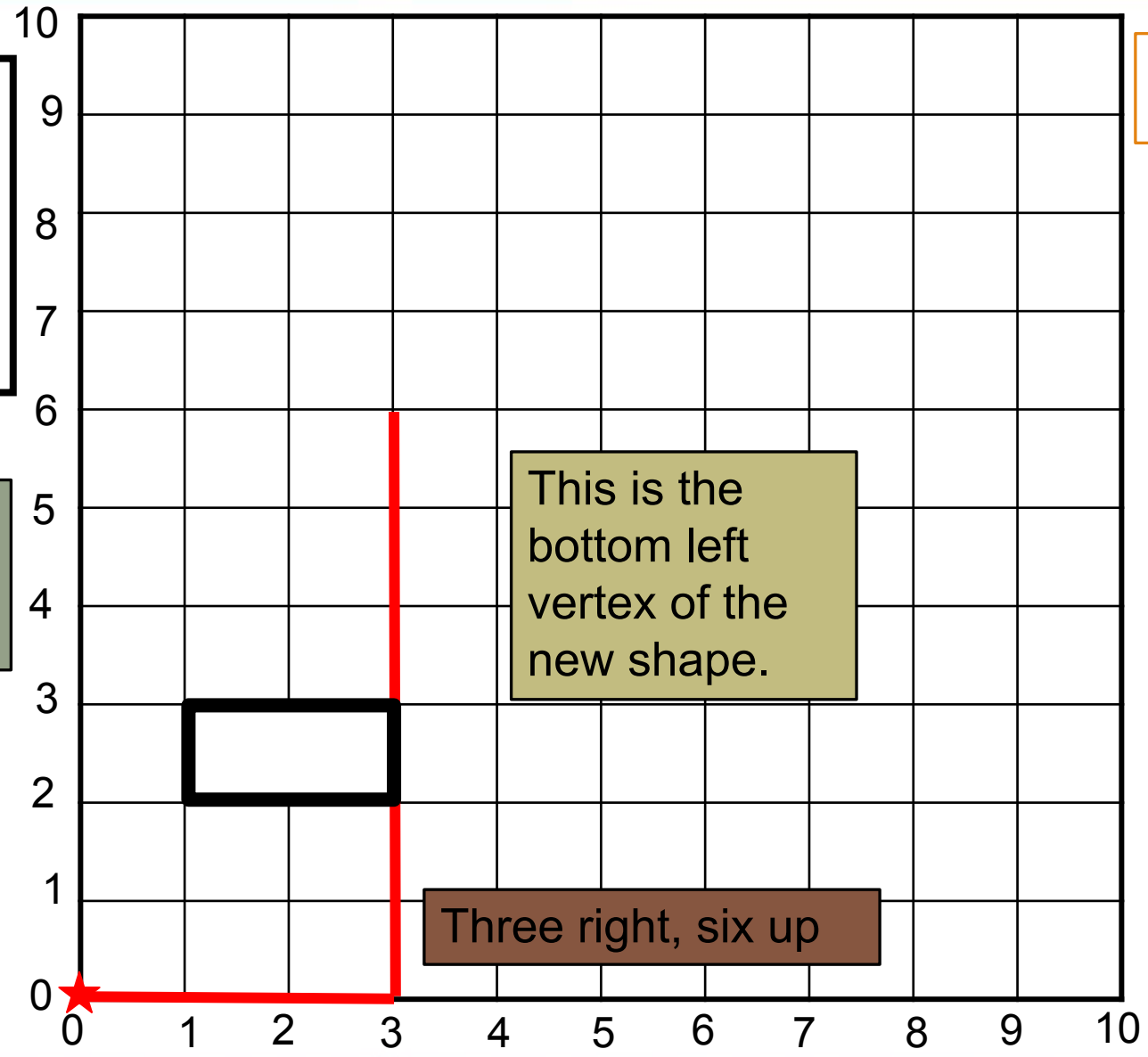
LO: **enlarge a shape on a grid when given a scale factor and center of enlargement.**

My Turn

Transform this rectangle by the enlargement:

Scale factor 3 from centre (0, 0)

Multiply this distance by the scale factor.



St. Mary's Catholic High School, Muhaisnah

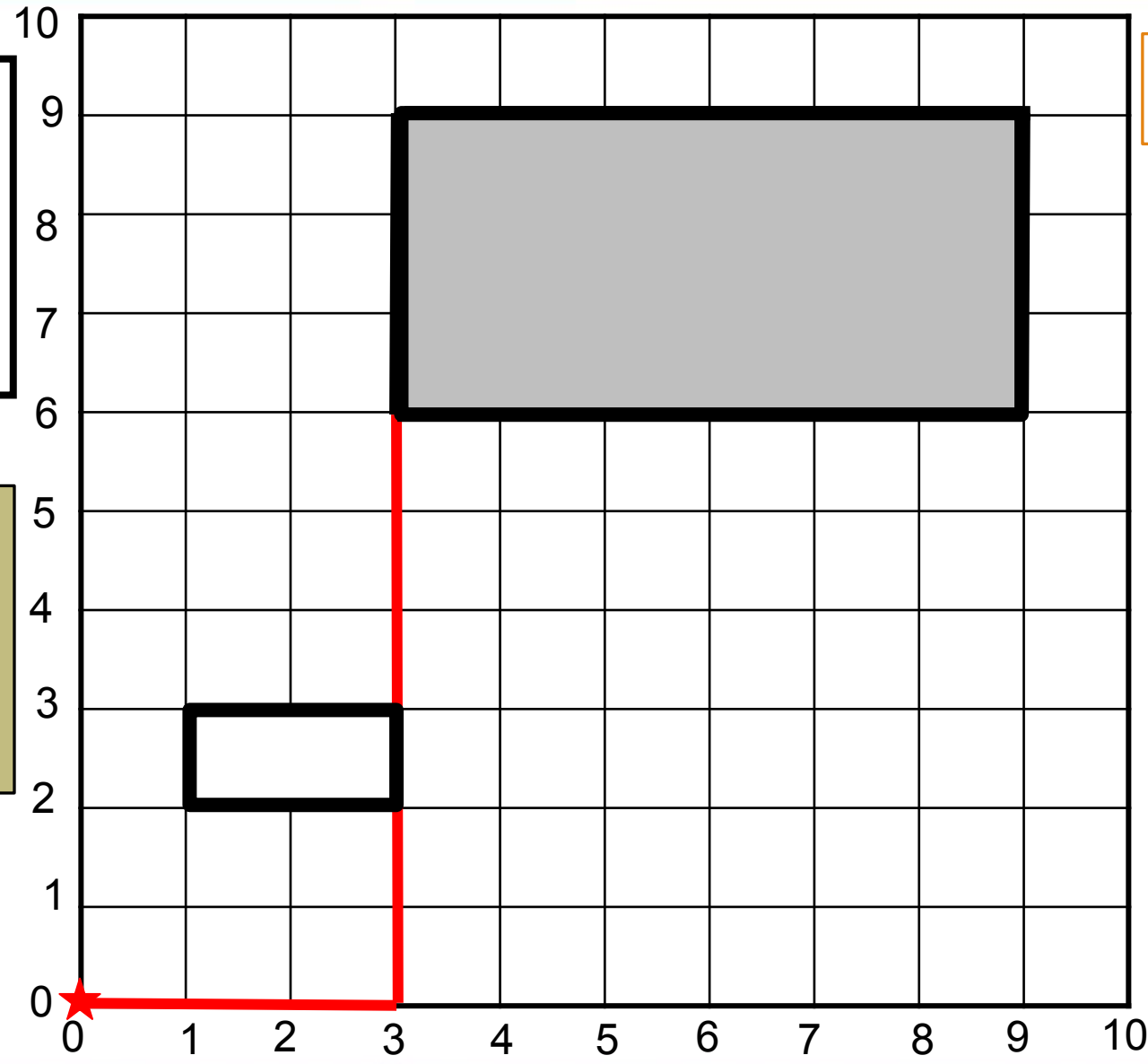
Enlargement
- Positive scale factor

LO: **enlarge a shape on a grid when given a scale factor and center of enlargement.**

Transform this rectangle by the enlargement:

Scale factor 3 from centre (0, 0)

Multiply every side length by the scale factor and draw in the new shape.



My Turn

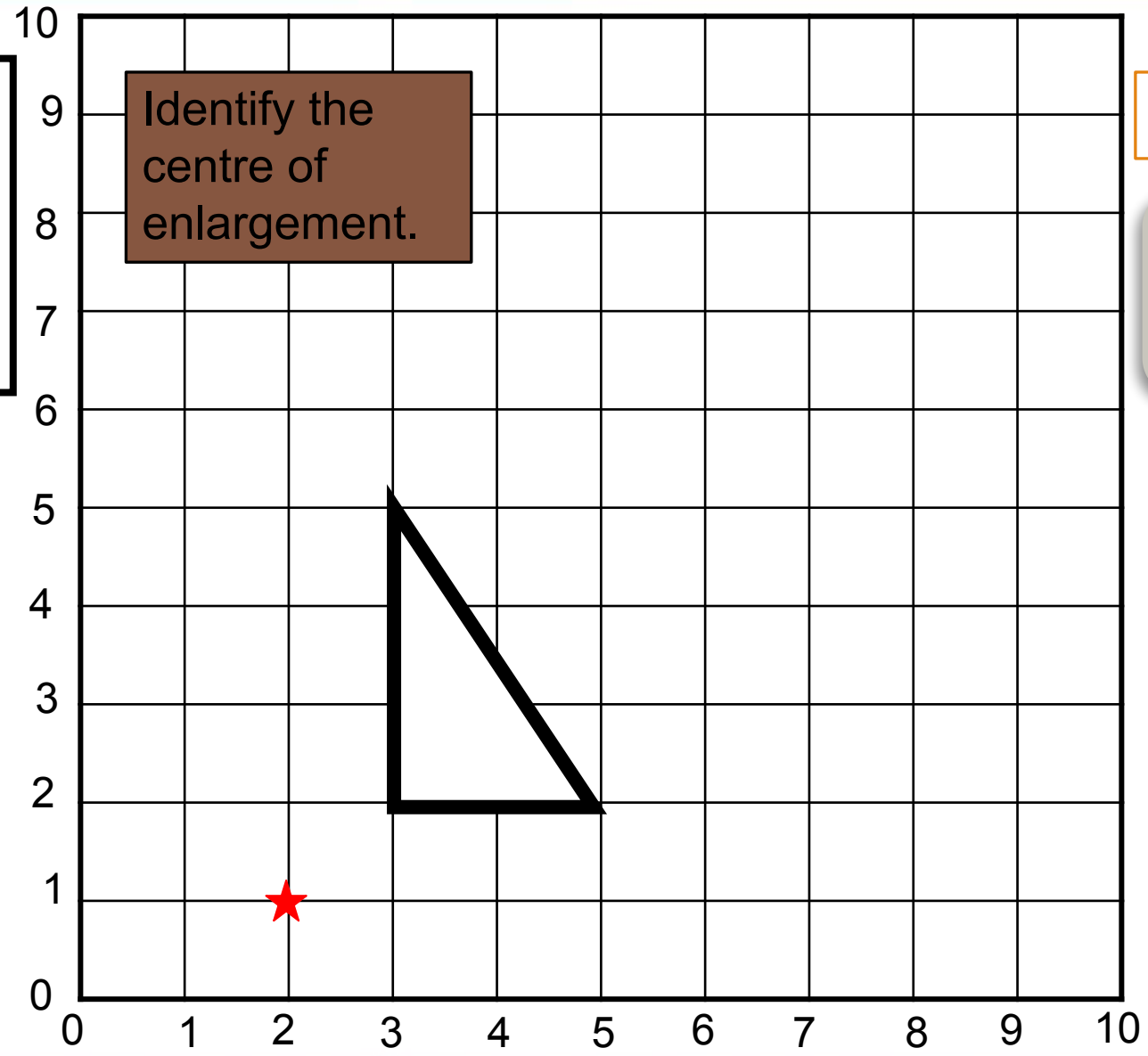
St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

LO: **enlarge a shape on a grid when given a scale factor and center of enlargement.**

Transform this triangle by the enlargement:

Scale factor 2 from centre (2, 1)



Your Turn

02:00

St. Mary's Catholic High School, Muhaisnah

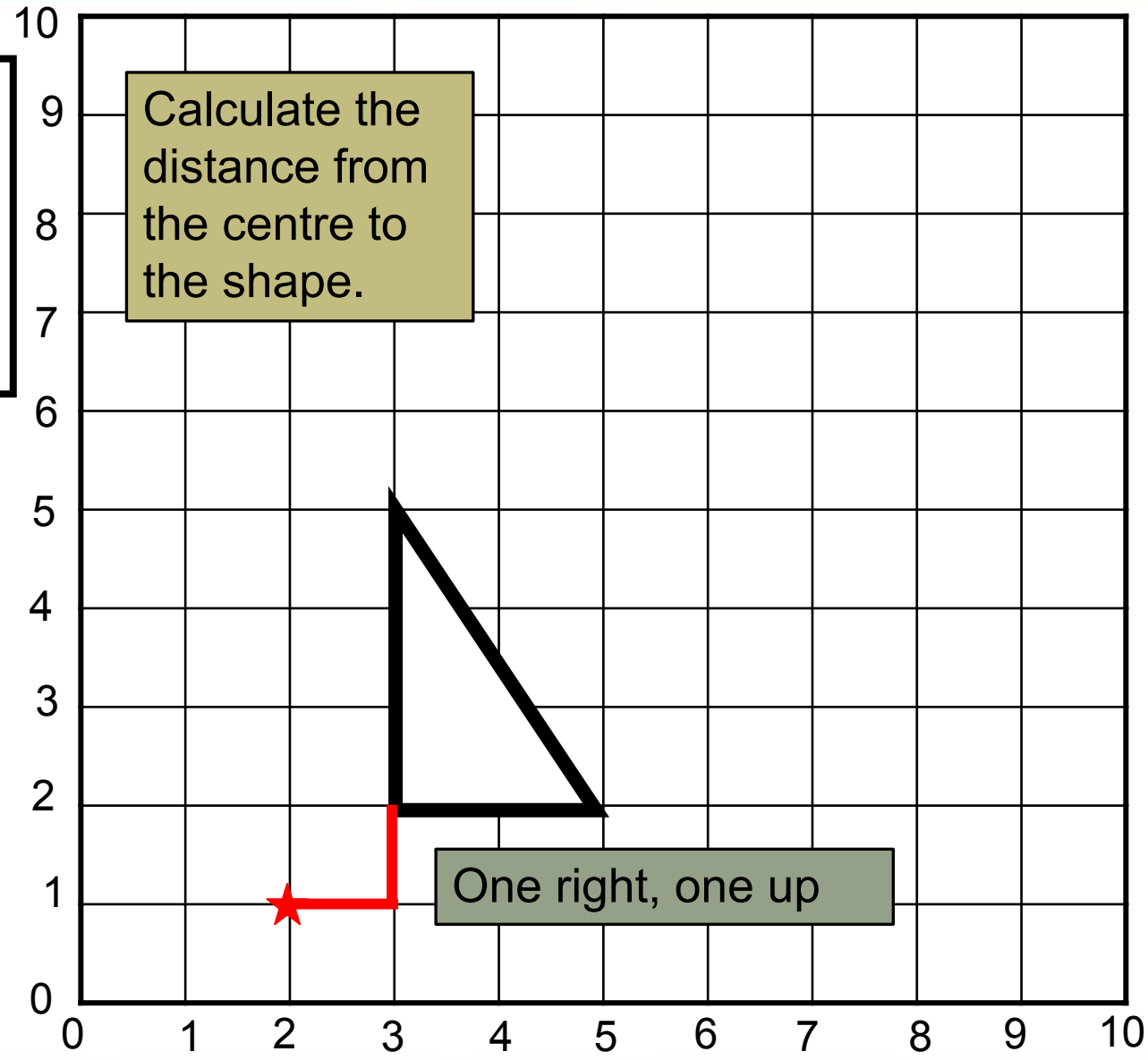
Enlargement
- Positive scale factor

Your Turn

shape on a grid when given a
and center of enlargement.

Transform this triangle by the enlargement:

Scale factor 2 from centre (2, 1)



St. Mary's Catholic High School, Muhaisnah

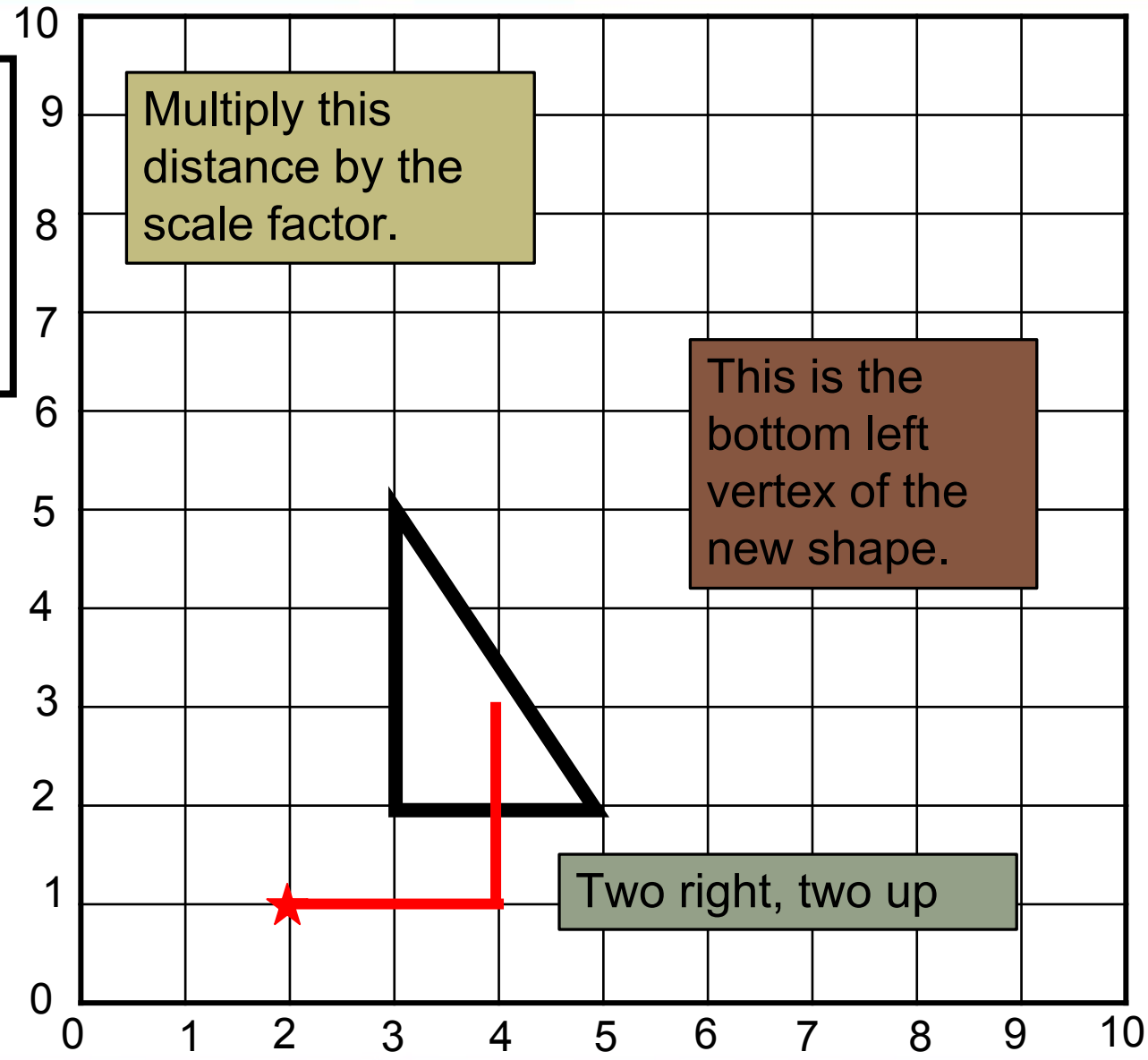
Enlargement
- Positive scale factor

Your Turn

shape on a grid when given a
and center of enlargement.

Transform this triangle by the enlargement:

Scale factor 2 from centre (2, 1)



St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

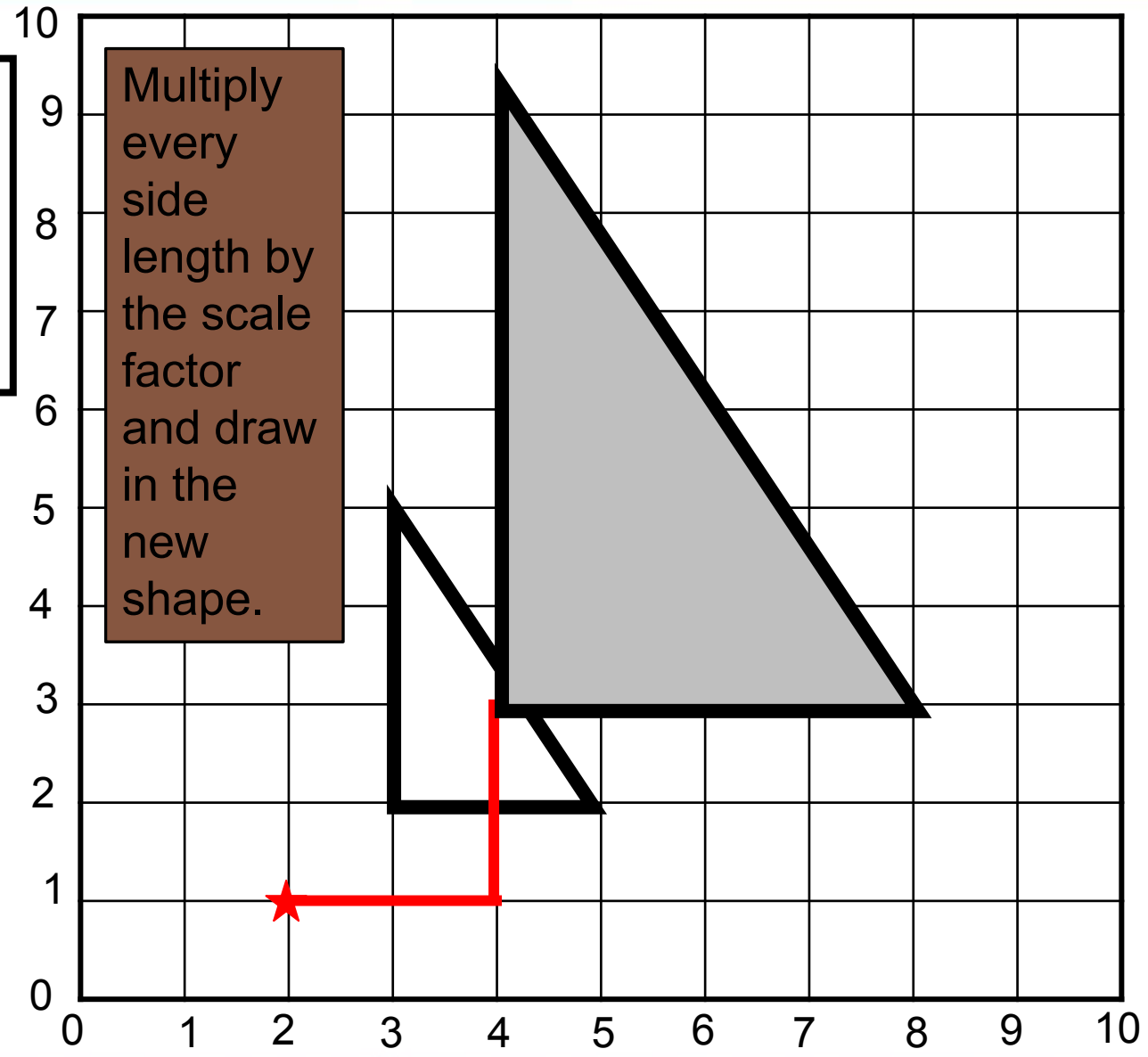
Your Turn

shape on a grid when given a
and center of enlargement.

Transform this triangle by the enlargement:

Scale factor 2 from centre (2, 1)

Multiply every side length by the scale factor and draw in the new shape.



St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

LO: en[illegible]ape on a grid when given a scal[illegible]d center of enlargement.

03:00

MINI - PLENARY

Ant-Man is 4 inches tall, and his shoulders are 2.5 inches wide. After taking a Pym Particle, he has grown to 28 inches tall.

1) How wide are his shoulders when he grows to 28 inches tall? _____

2) What is the zoom (scale) factor of the Pym Particle he took?

A) 2.5 **B)** 4 **C)** 7 **D)** 28

St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

LO: **enlarge a shape on a grid when given a scale factor and center of enlargement.**

MINI - PLENARY

Figure	Height	Width
Small	4	2.5
Large	28	w

$$\frac{4}{28} = \frac{2.5}{w}$$

$$4 \bullet w = 28 \bullet 2.5$$

$$4w = 70$$

$$n = 17.5$$

St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

LO: **enlarge a shape on a grid when given a scale factor and center of enlargement.**

How **confident** do you feel with this topic?

Write red, amber or green in your book!

Complete the corresponding activity ☺

Extension: What word do the images of the enlargements makes?

St. Mary's Catholic High School, Muhaish

10:00

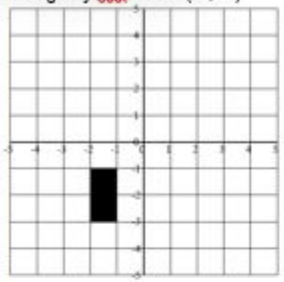
Enlargement - Positive scale factor

Core Task and Challenge

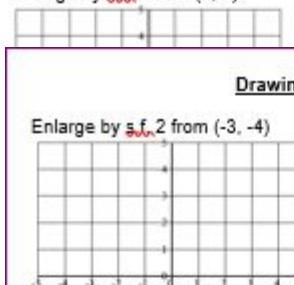
...pe on a grid when given a ...d center of enlargement.

Drawing Enlargements GREEN (HA)

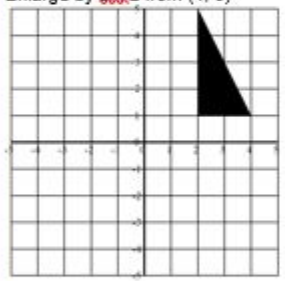
Enlarge by s.f. 2 from (-3, -4)



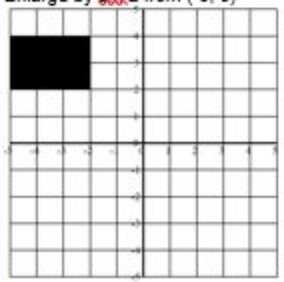
Enlarge by s.f. 3 from (4, 1)



Enlarge by s.f. 2 from (4, 5)

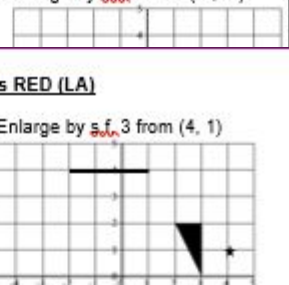


Enlarge by s.f. 2 from (-5, 5)



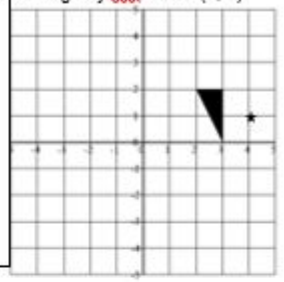
Drawing Enlargements AMBER (MA)

Enlarge by s.f. 2 from (-3, -4)

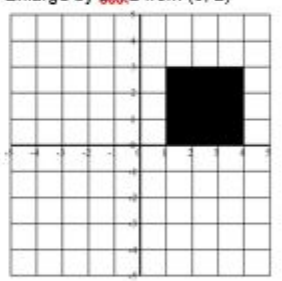


1) Identify the centre of enlargement
2) Calculate the distance from the centre to the shape.
3) Multiply this distance by the scale factor.
4) Multiply every side length by the scale factor and draw in the new shape.

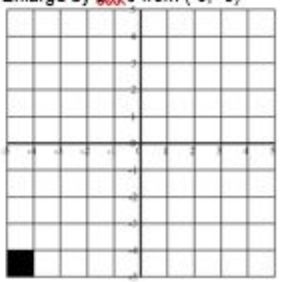
Enlarge by s.f. 3 from (4, 1)



Enlarge by s.f. 2 from (5, 2)

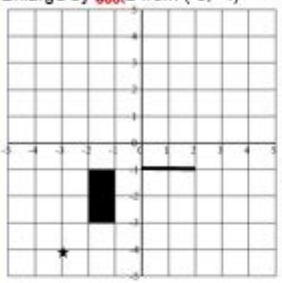


Enlarge by s.f. 5 from (-5, -5)



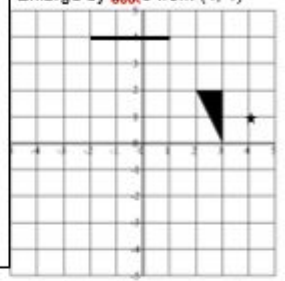
Drawing Enlargements RED (LA)

Enlarge by s.f. 2 from (-3, -4)

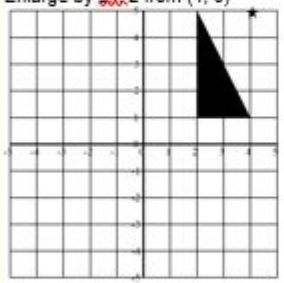


1) Identify the centre of enlargement
2) Calculate the distance from the centre to the shape.
3) Multiply this distance by the scale factor.
4) Multiply every side length by the scale factor and draw in the new shape.

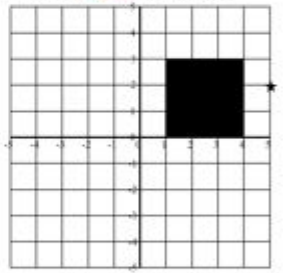
Enlarge by s.f. 3 from (4, 1)



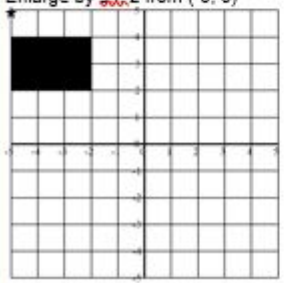
Enlarge by s.f. 2 from (4, 5)



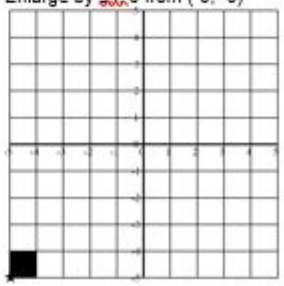
Enlarge by s.f. 2 from (5, 2)



Enlarge by s.f. 2 from (-5, 5)



Enlarge by s.f. 5 from (-5, -5)

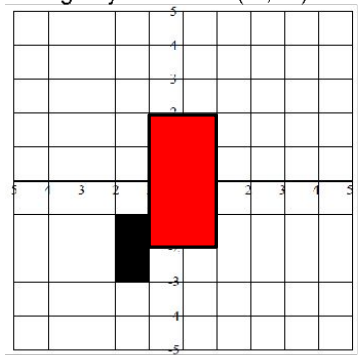


St. Mary's Catholic High School, Muhaisnah

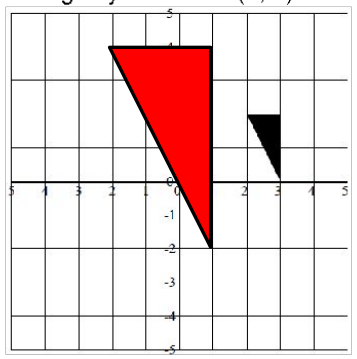
Enlargement
- Positive scale factor

LO: **enlarge a shape on a grid when given a scale factor and center of enlargement.**

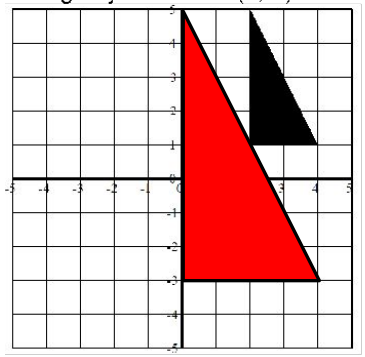
Enlarge by s.f. 2 from (-3, -4)



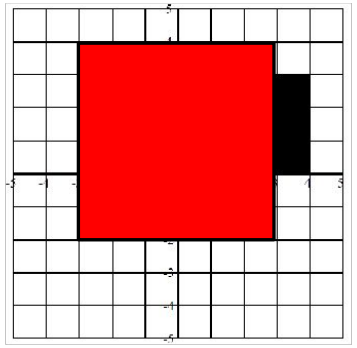
Enlarge by s.f. 3 from (4, 1)



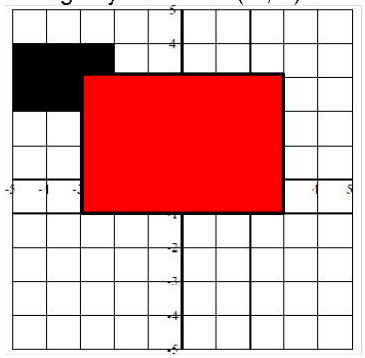
Enlarge by s.f. 2 from (4, 5)



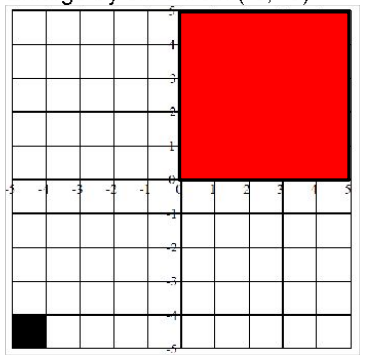
Enlarge by s.f. 2 from (5, 2)



Enlarge by s.f. 2 from (-5, 5)



Enlarge by s.f. 5 from (-5, -5)



Answers

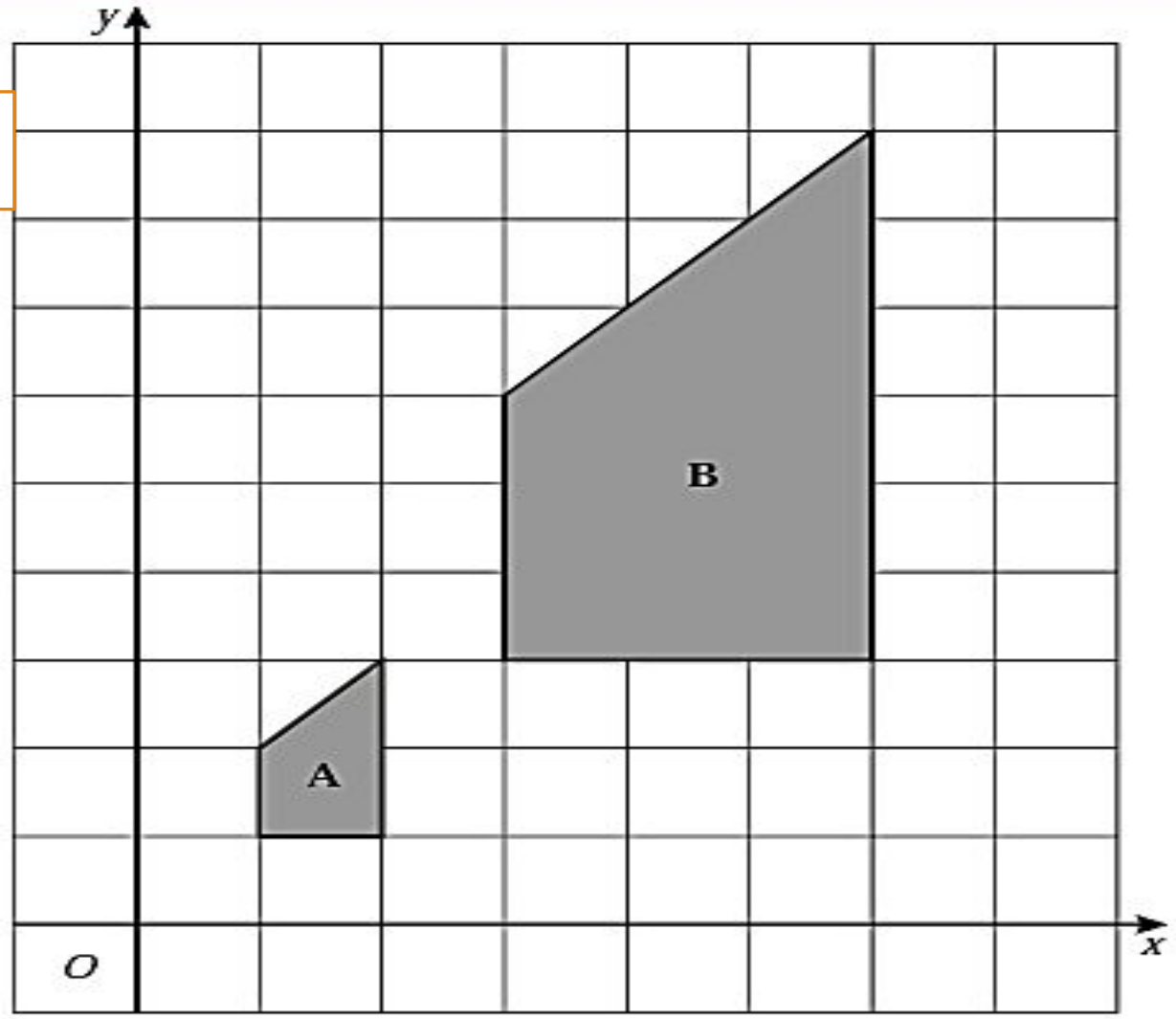
St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

LO: **enlarge a shape on a grid when given a scale factor and center of enlargement.**

Plenary

02:00



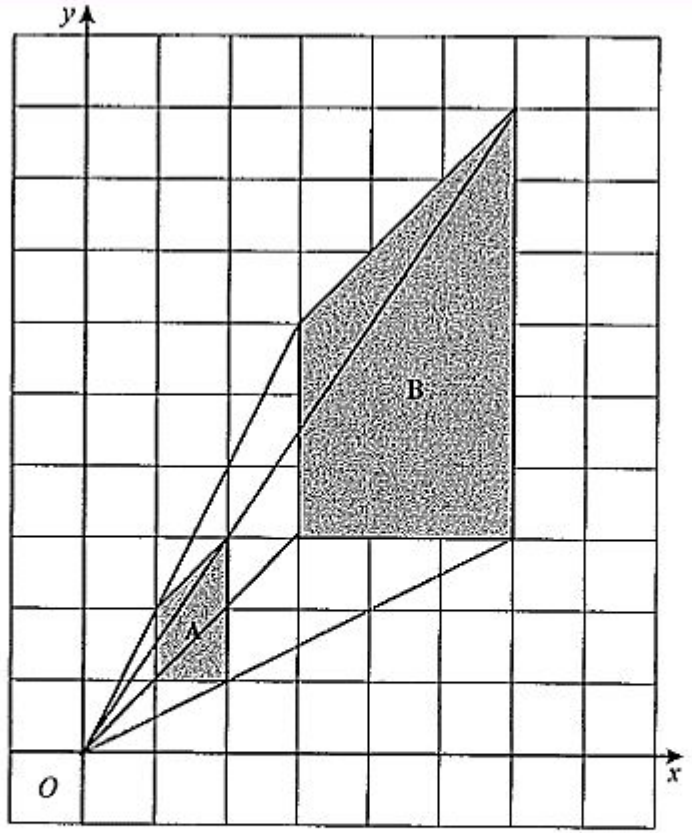
Describe fully the single transformation which takes shape **A** onto shape **B**.

St. Mary's Catholic High School, Muhaisnah

Enlargement
- Positive scale factor

Plenary

arge a shape on a grid when given a
factor and center of enlargement.



Describe fully the single transformation which takes shape **A** onto shape **B**.

enlargement, scale factor 3

centre (0,0)

(Total 3 marks)