St. Mary's Catholic High School, Muhaisnah

Enlargement – Center of enlargement

LO: **enlarge a shape on a grid specified by a center when given a scale factor.**

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 – Center of enlargement

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KEYWORDS:

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

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Starter

02:00

EXAMPLE

DITDIONA can be rearranged to make **ADDITION**

ERIPLT	Triple
RENLAGE	Enlarge
SERTIVCE	Vertices

EXTENSION

Develop your own Mathematical anagrams as above as a creative entrepreneur.

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GCSE/iGCSE Assessment Objective Specification - Foundation

enlargement

d specified by a center when given a scale factor.

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**

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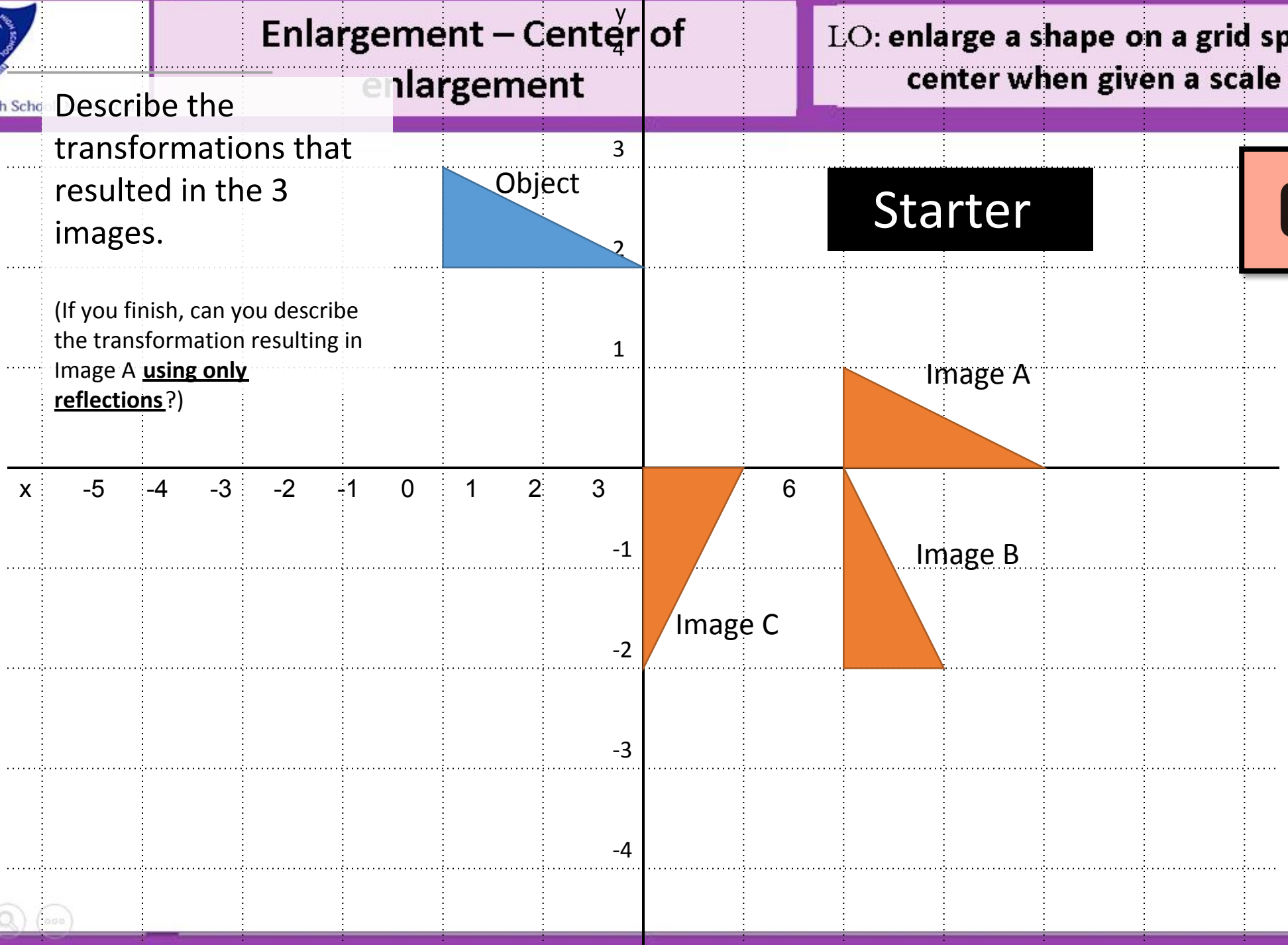
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a center when given a scale factor.

Describe the transformations that resulted in the 3 images.

(If you finish, can you describe the transformation resulting in Image A **using only reflections**?)



Starter

03:00

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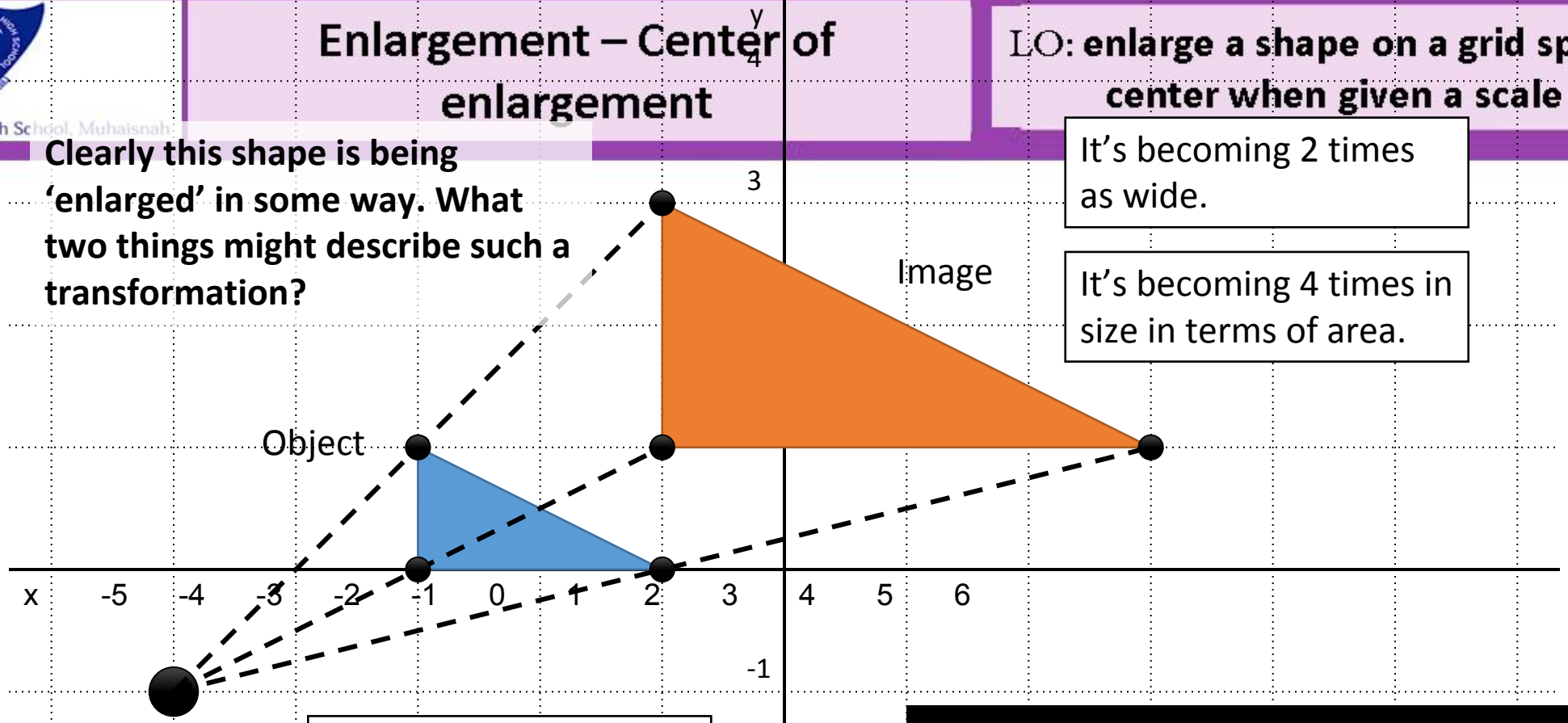
Enlargement – Center of enlargement

LO: **enlarge a shape on a grid specified by a center when given a scale factor.**

Clearly this shape is being 'enlarged' in some way. What two things might describe such a transformation?



It's becoming 2 times as wide.

It's becoming 4 times in size in terms of area.

It's being enlarged about some point.

Describing an Enlargement

Click to Start Bromanimation

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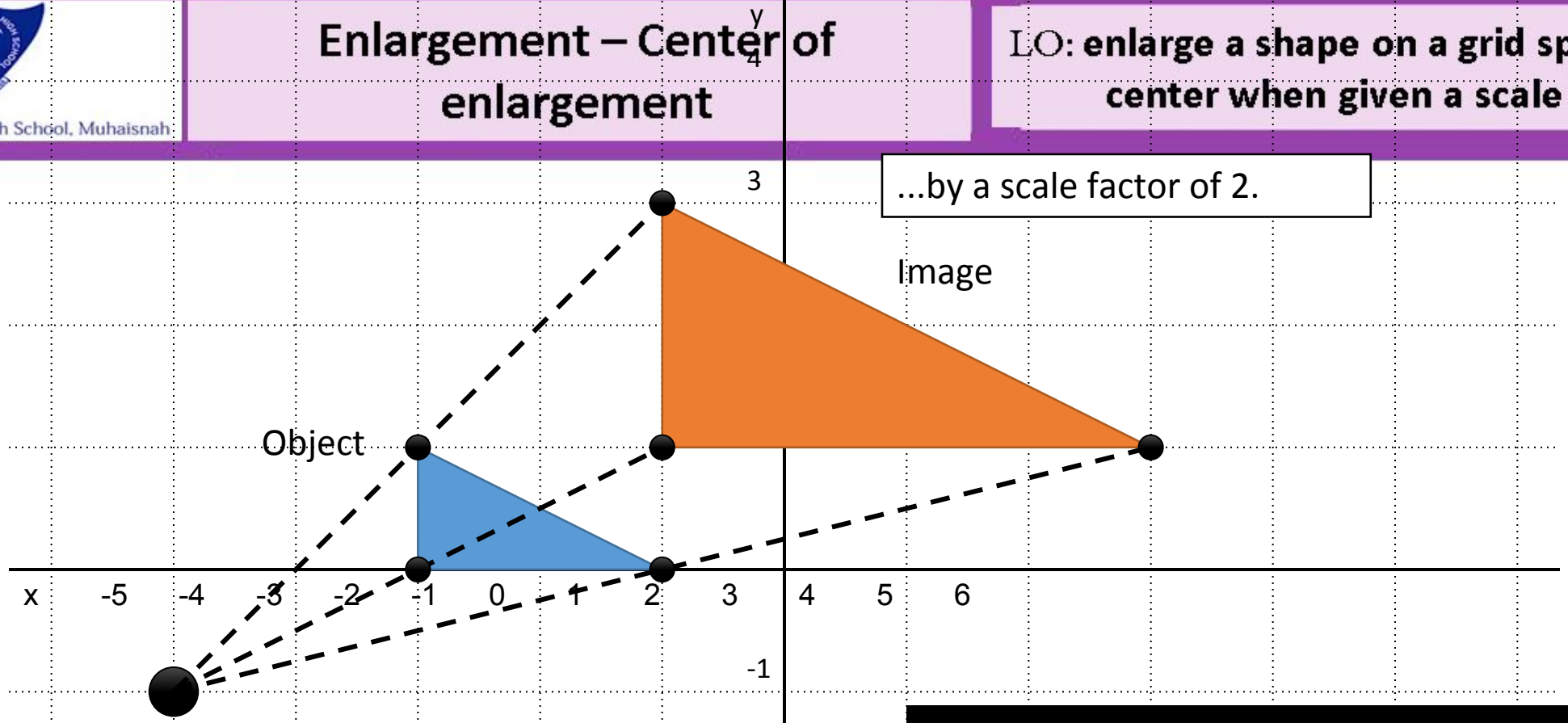
Enlargement – Center of enlargement

LO: **enlarge a shape on a grid specified by a center when given a scale factor.**



...by a scale factor of 2.

An enlargement about the point (-5, -1)

Describing an Enlargement

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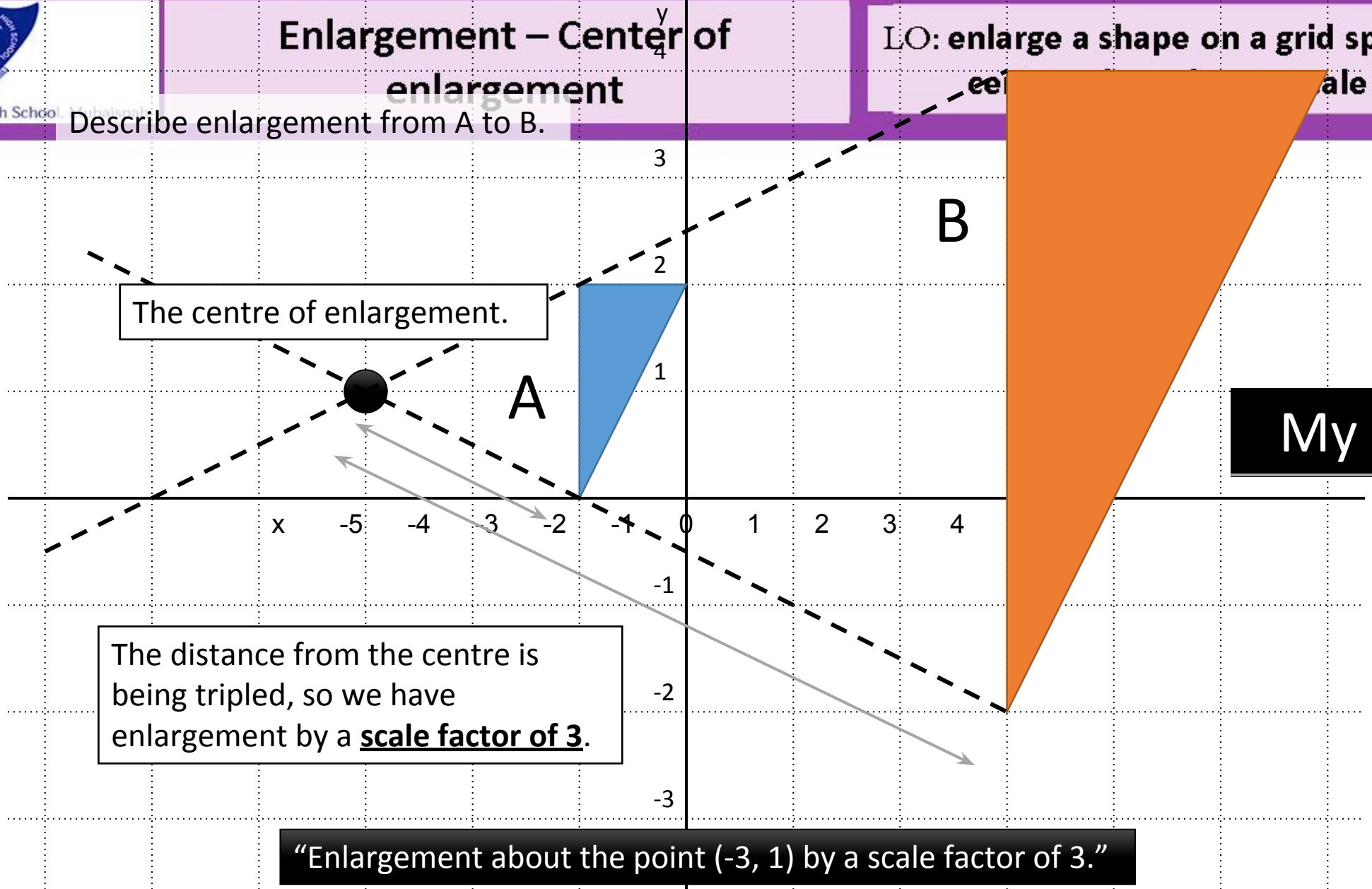
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a centre of enlargement and scale factor.

Describe enlargement from A to B.



My turn

"Enlargement about the point (-3, 1) by a scale factor of 3."

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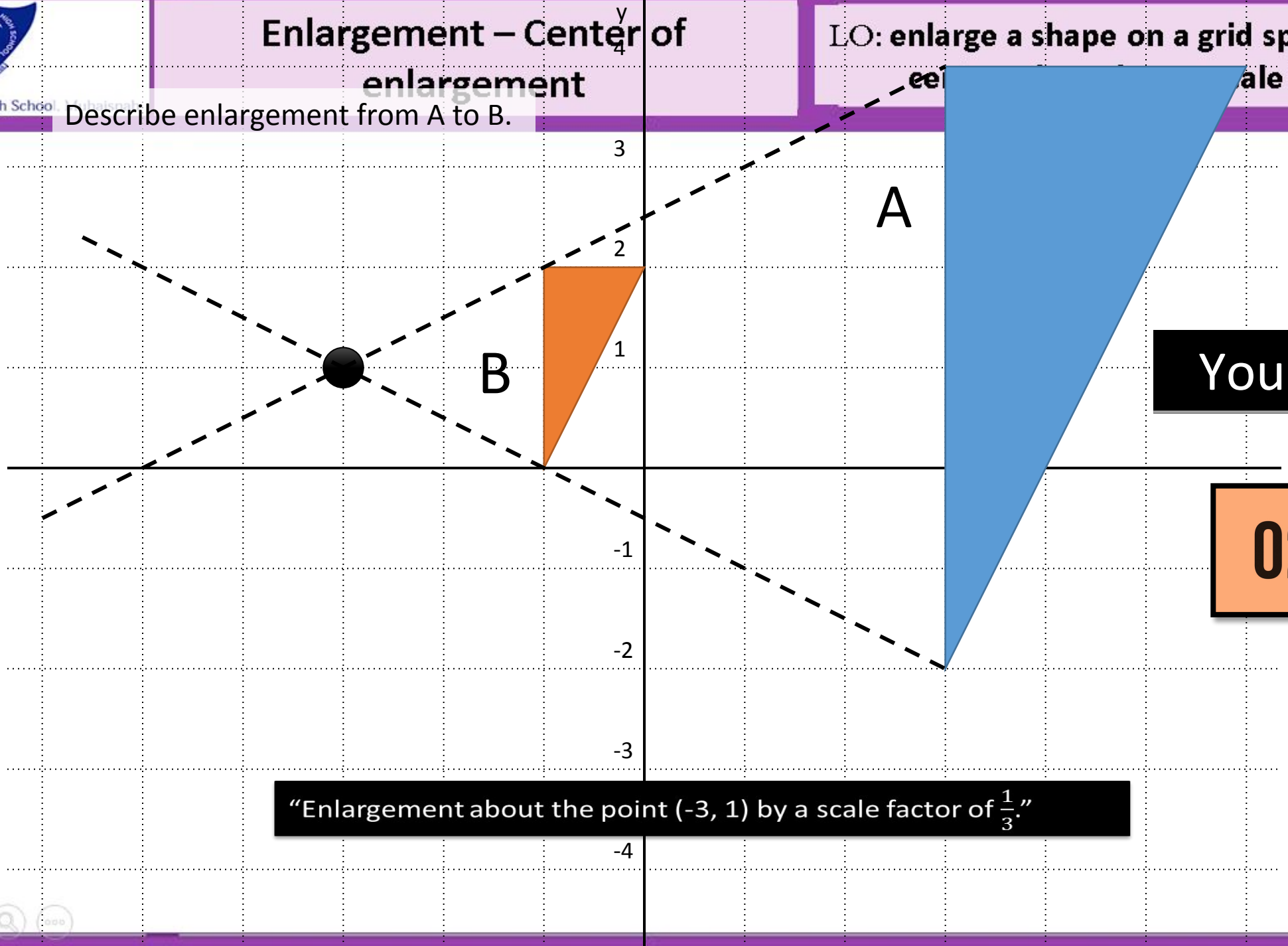
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a ee ale factor.

Describe enlargement from A to B.



Your Turn

02:00

"Enlargement about the point (-3, 1) by a scale factor of $\frac{1}{3}$."

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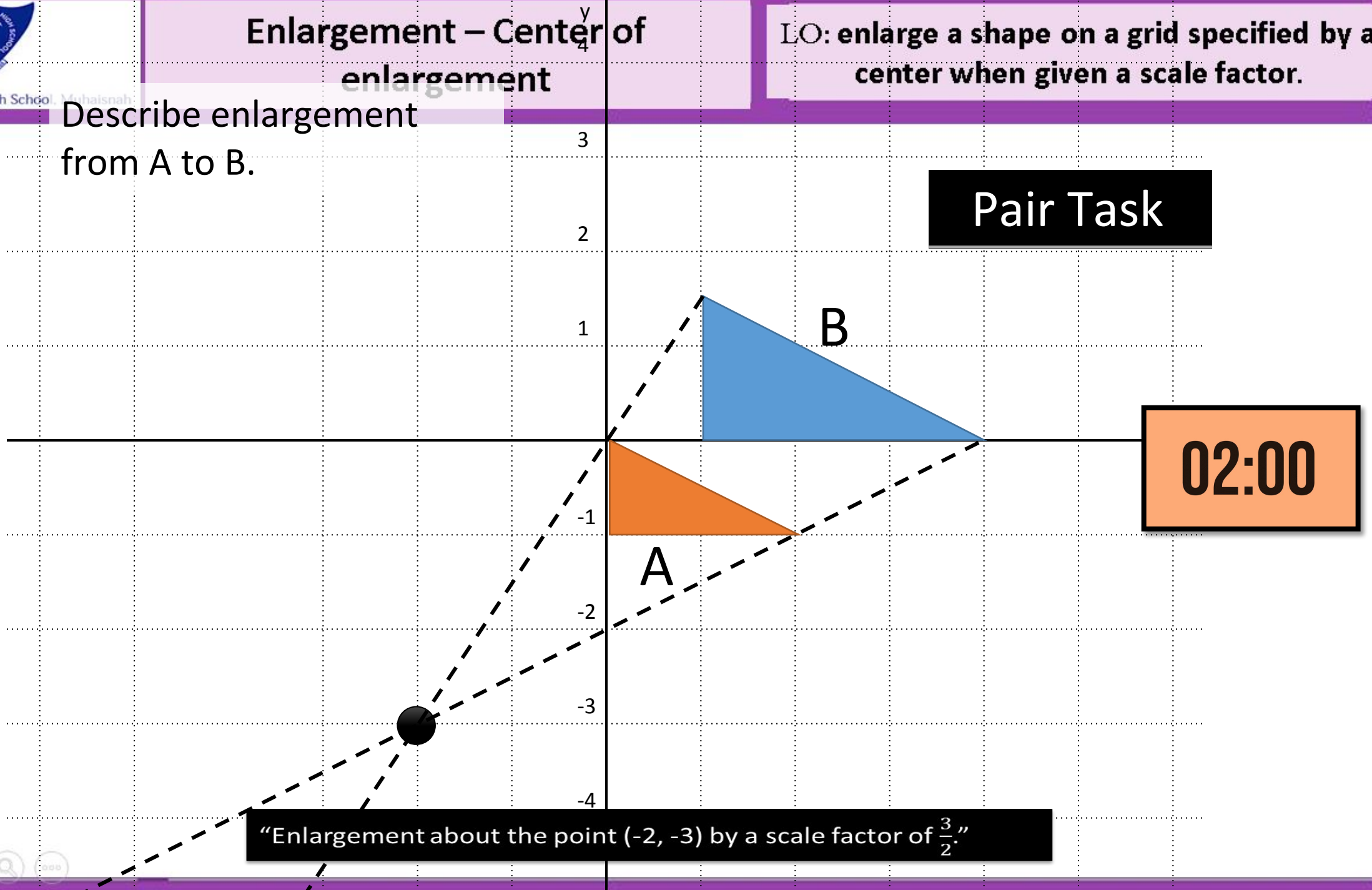
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a center when given a scale factor.

Describe enlargement from A to B.



Pair Task

02:00

"Enlargement about the point (-2, -3) by a scale factor of $\frac{3}{2}$."

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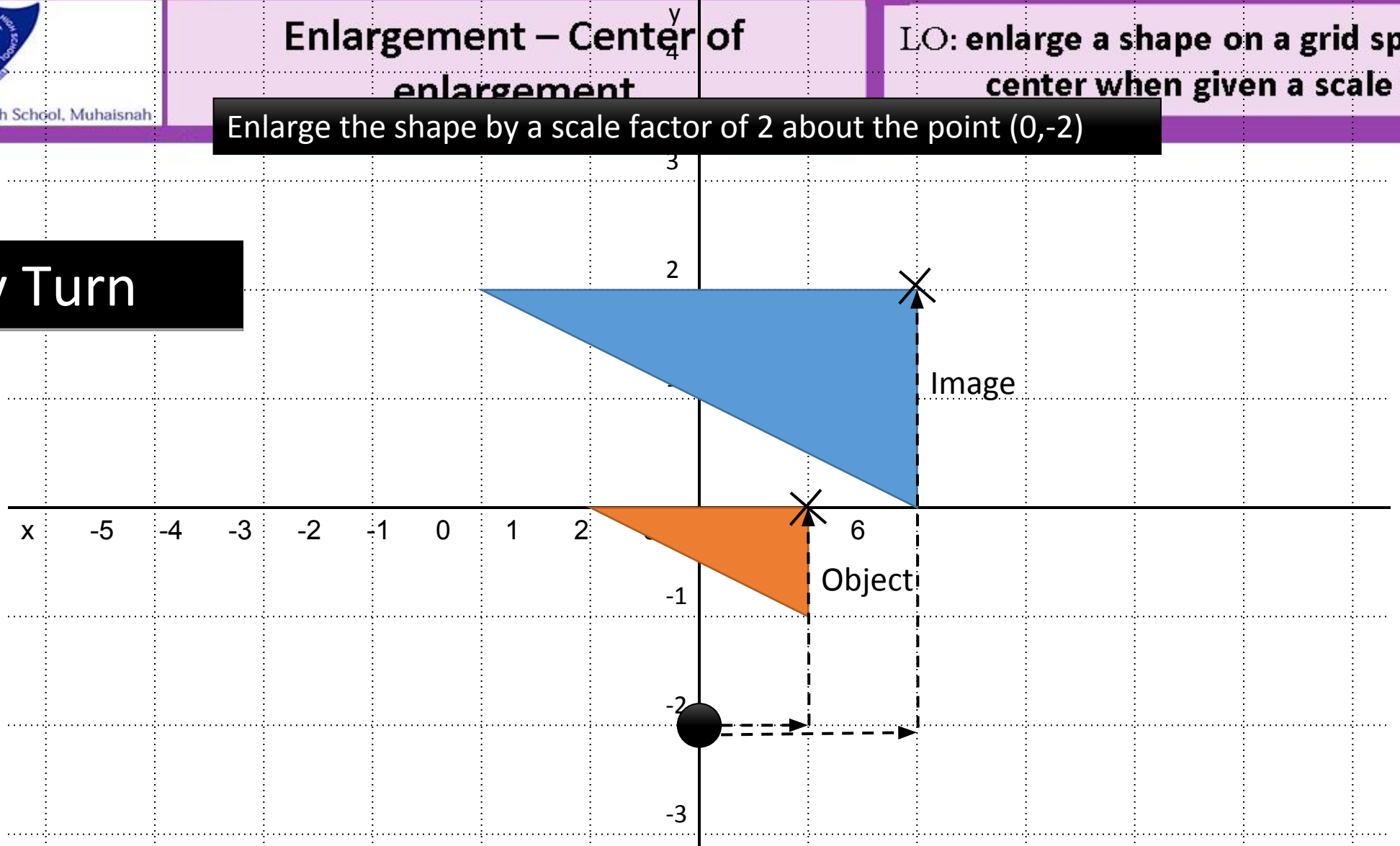
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a center when given a scale factor.

Enlarge the shape by a scale factor of 2 about the point (0,-2)

My Turn



The approach is to take each vertex on the object one at a time, count the squares across and up/down from the centre, and times each by the scale factor

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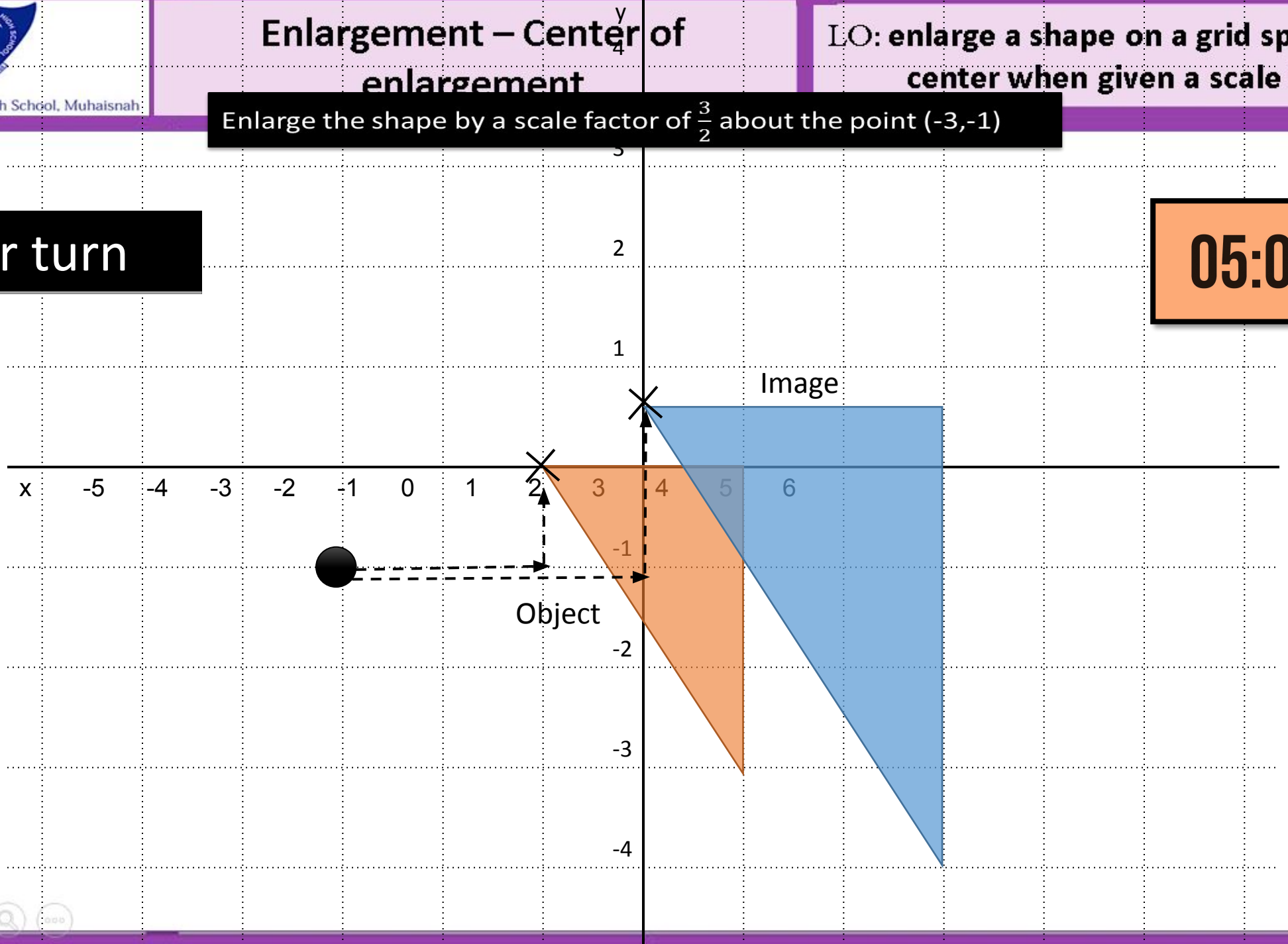
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a center when given a scale factor.

Enlarge the shape by a scale factor of $\frac{3}{2}$ about the point (-3,-1)

Your turn

05:00



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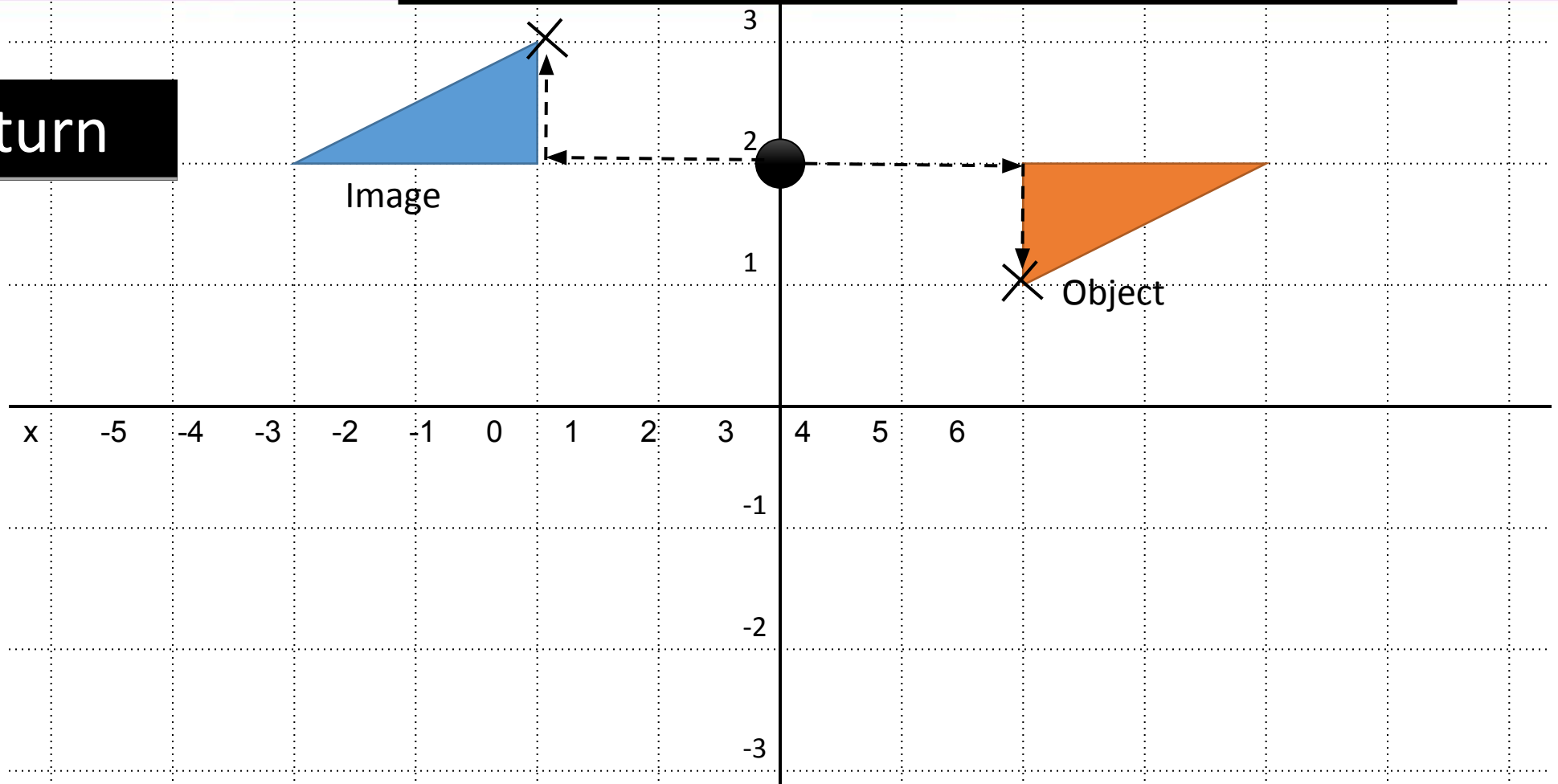
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a center when given a scale factor.

Enlarge the shape by a scale factor of -1 about the point (0,2)

My turn



Bro Tip: When the scale factor is negative, the principle is exactly the same. Any 'negative distances' go in the opposite direction.

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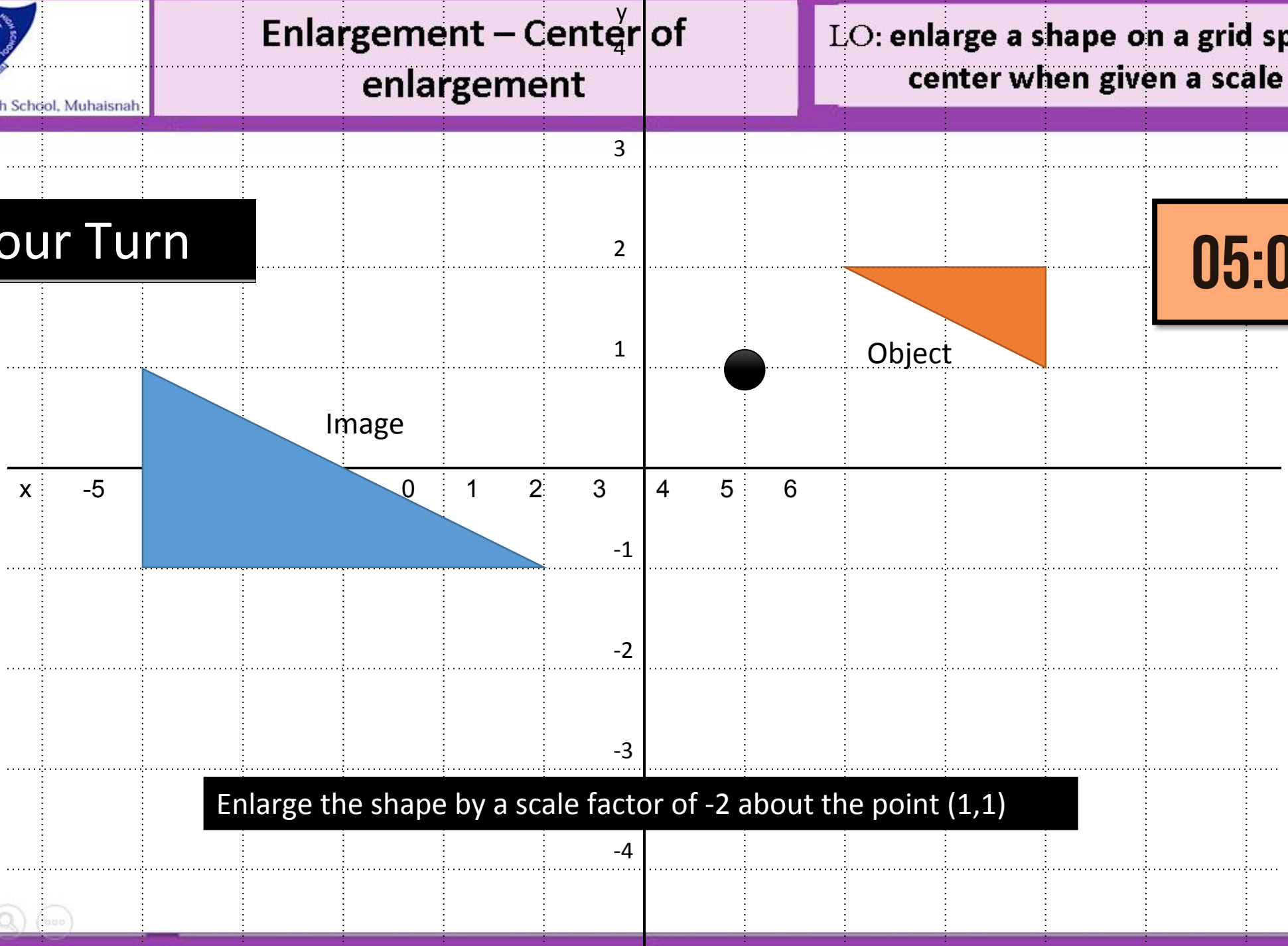
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a center when given a scale factor.

Your Turn

05:00



Enlarge the shape by a scale factor of -2 about the point (1,1)

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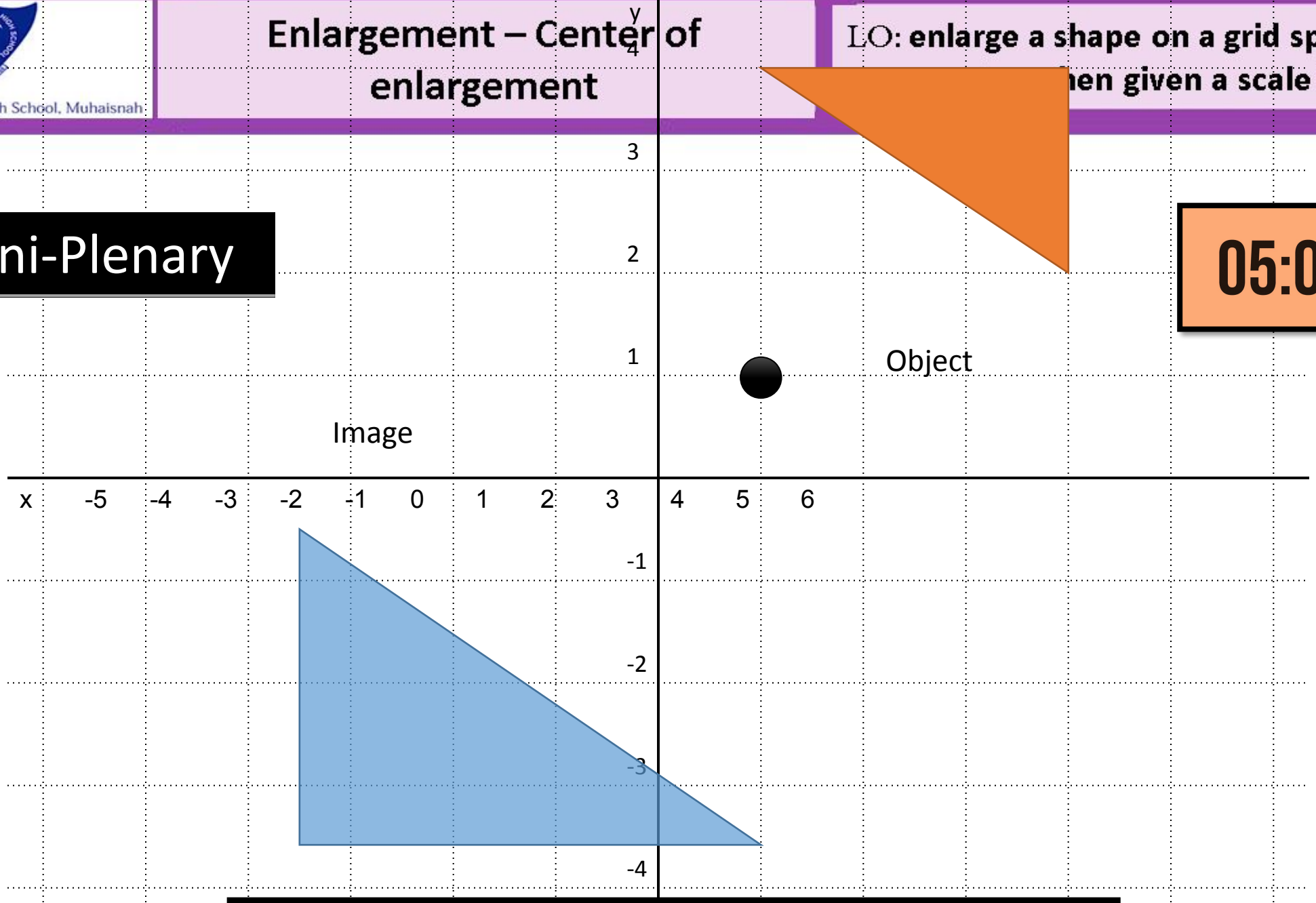
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a [illegible]hen given a scale factor.

Mini-Plenary

05:00



Enlarge the shape by a scale factor of -1.5 about the point (1,1)

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Enlargement – Center of enlargement

LO: **enlarge a shape on a grid specified by a center when given a scale factor.**

Worksheet Time

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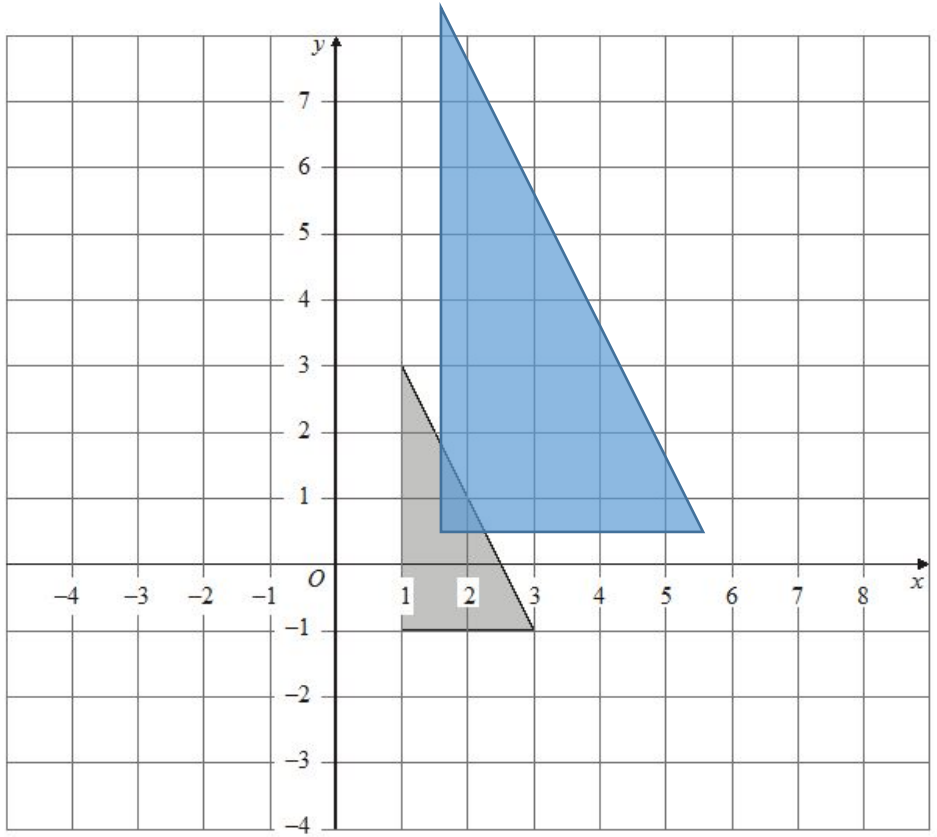
Enlargement – Center of enlargement

LO: **enlarge a shape on a grid specified by a center when given a scale factor.**

1.

Answers



Enlarge the shaded triangle by a scale factor 2, centre 0.

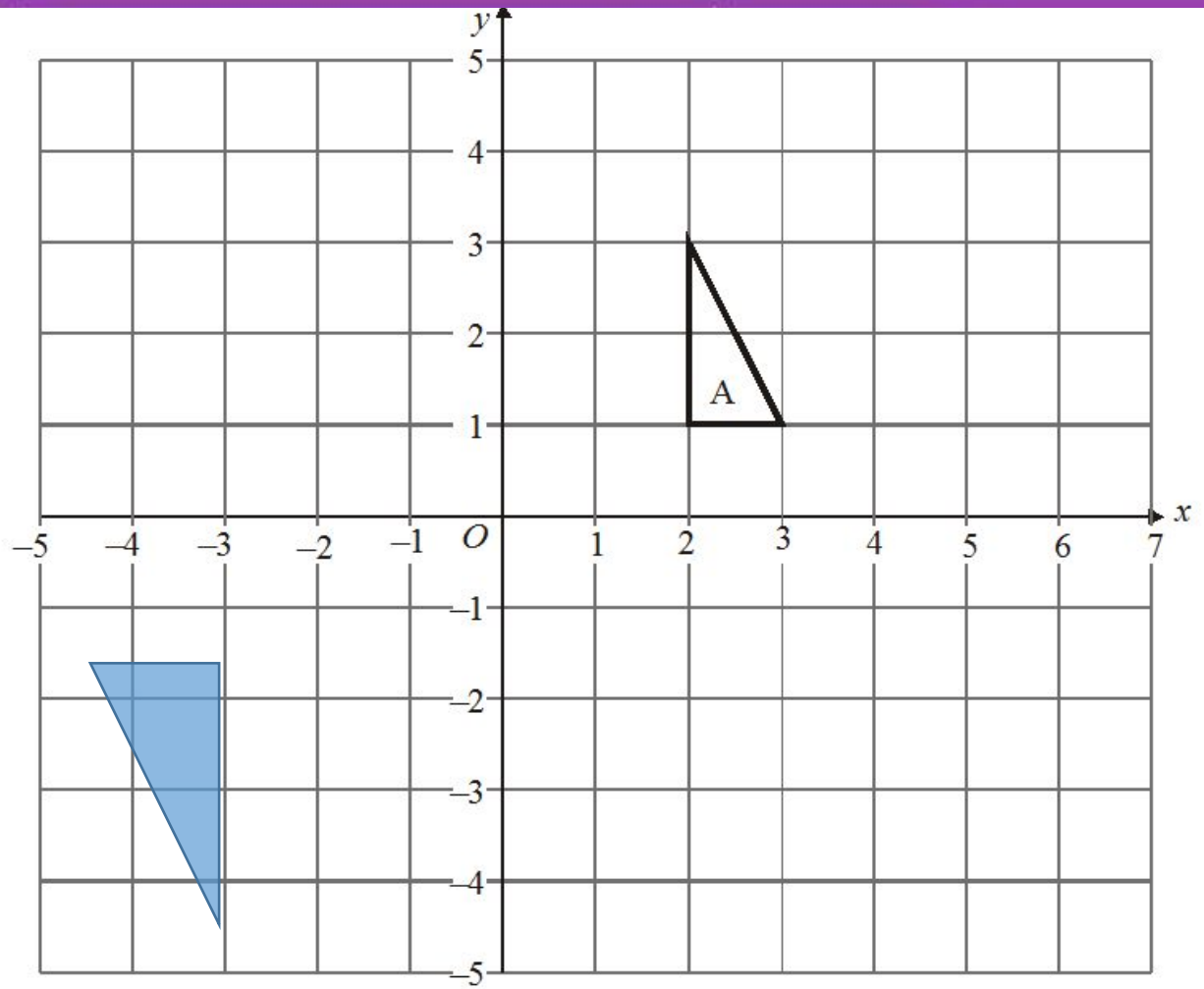
(Total 3 marks)

St. Mary's Catholic High School, Muhaisnah

Enlargement – Center of enlargement

LO: **enlarge a shape on a grid specified by a center when given a scale factor.**

Answers



Enlarge triangle **A** by scale factor $-1\frac{1}{2}$, centre O.

(Total 3 marks)

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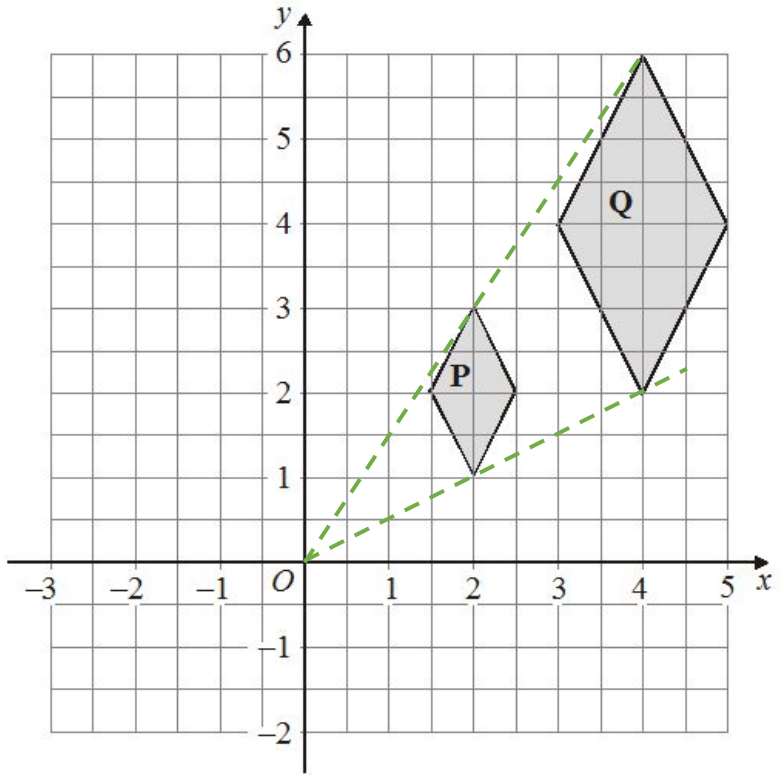
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a center when given a scale factor.

3.



(i) Describe fully the single transformation that maps shape **P** onto shape **Q**.

?

.....

.....

Answers

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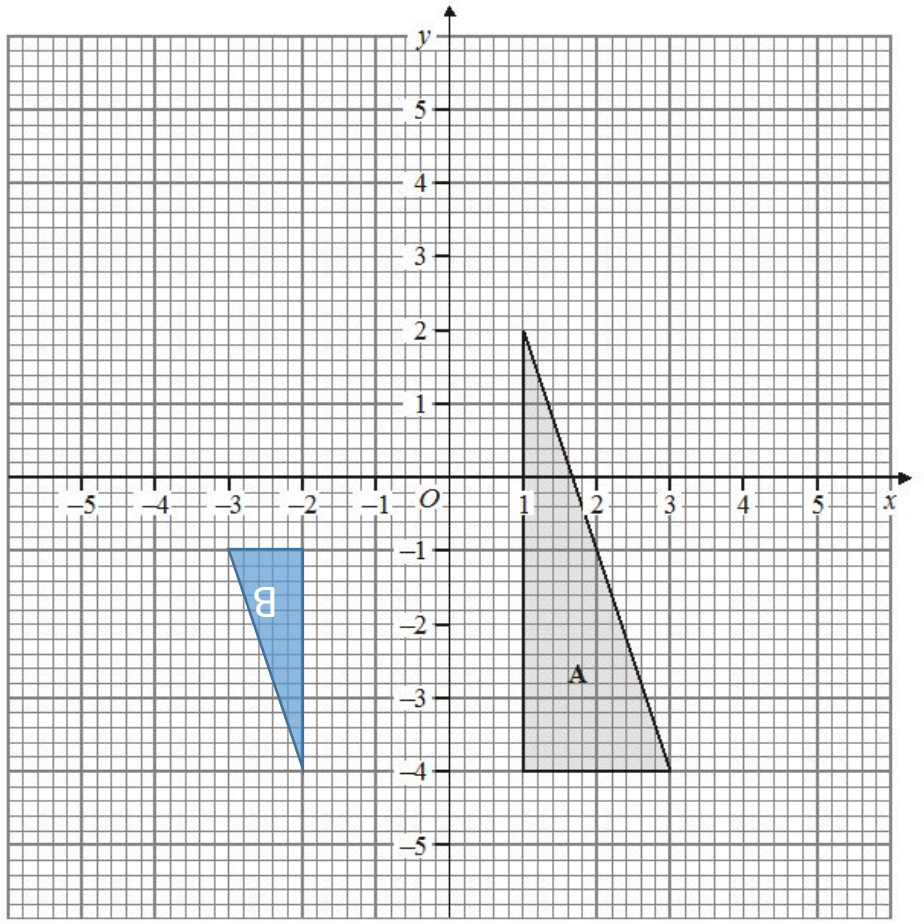
Enlargement – Center of

LO: enlarge a shape on a grid specified by a scale factor.

Answers

4.



Enlarge triangle **A** by scale factor $-\frac{1}{2}$, centre $(-1, -2)$.

Label your triangle **B**.

(Total 3 marks)

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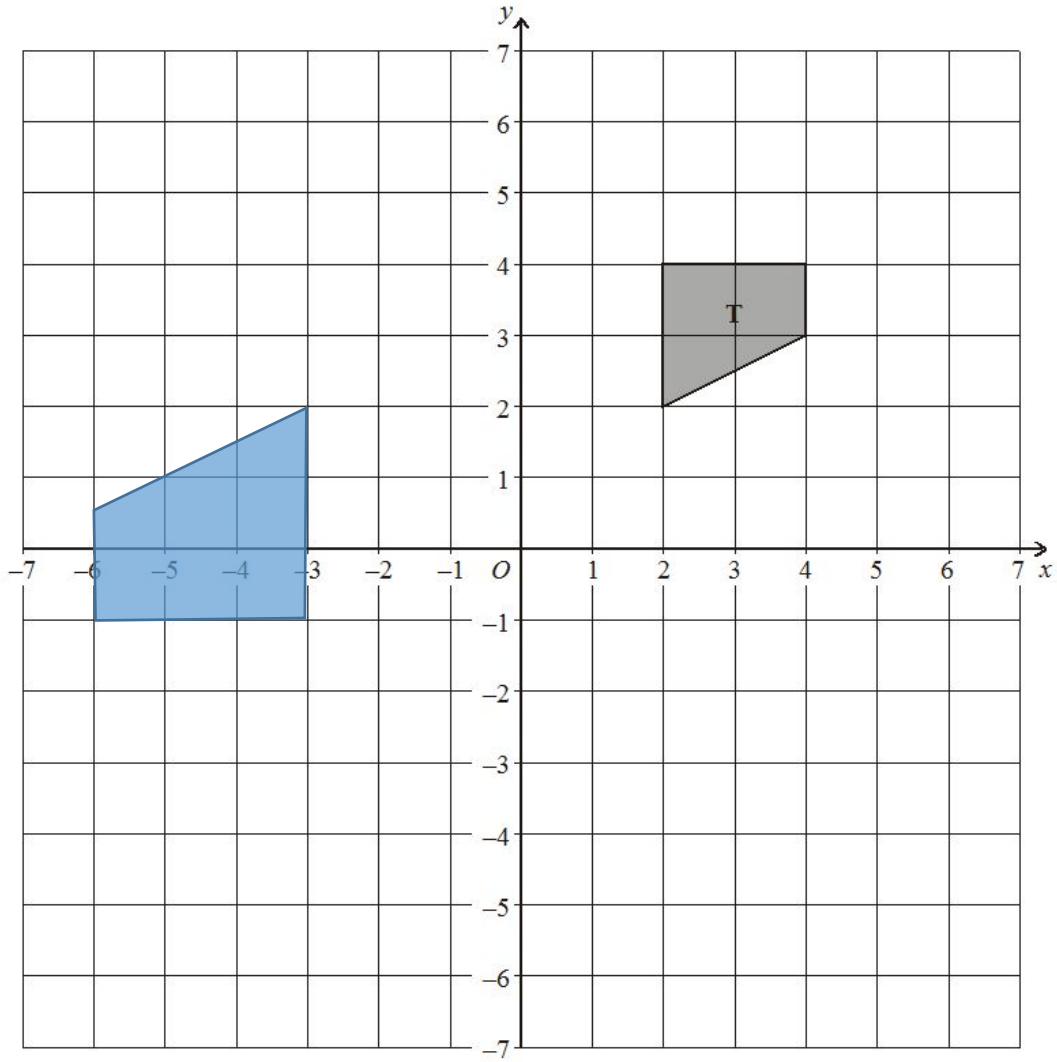
Enlargement – Center of enlargement

LO: **enlarge a shape on a grid specified by a center when given a scale factor.**

Answers

4.



Enlarge shape **T** with scale factor –1.5, centre (0, 2).

(Total 3 marks)

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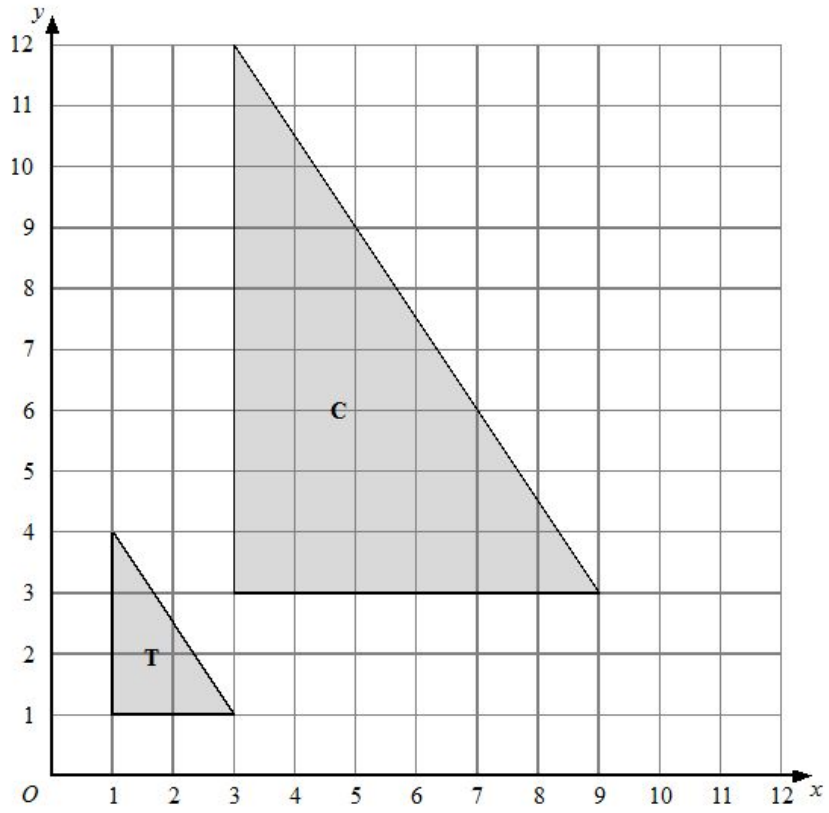
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a center when given a scale factor.

5.



(c) Describe fully the single transformation which maps triangle **T** onto triangle **C**.

?

.....

.....

(3)

Answers

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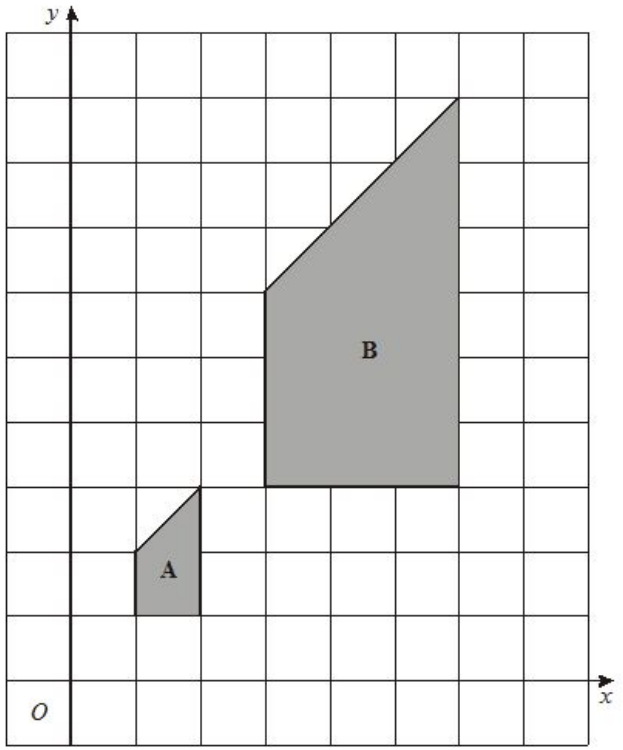
Enlargement – Center of enlargement

LO: **enlarge a shape on a grid specified by a center when given a scale factor.**

Answers

6.



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

… ? ……

……

(Total 3 marks)

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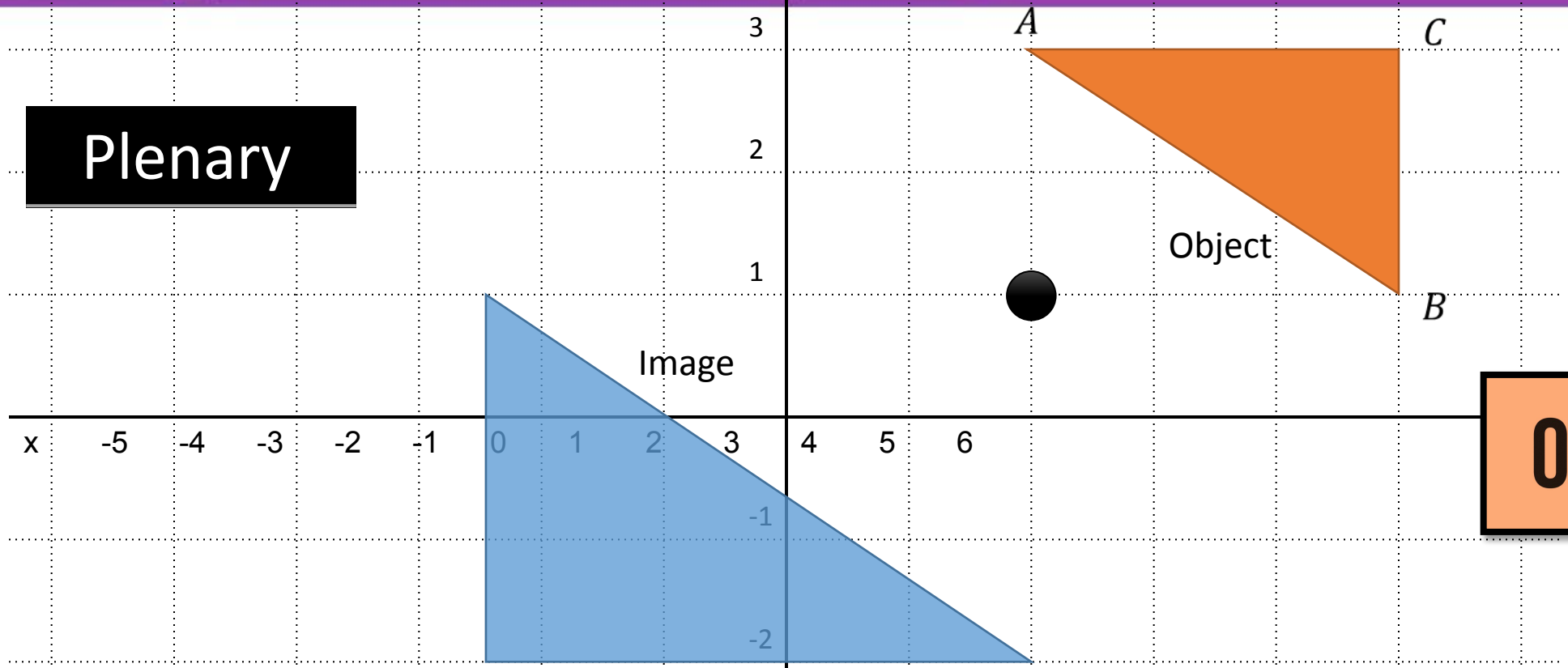
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a center when given a scale factor.

Plenary



02:00

Enlarge the shape by a scale of $-\frac{3}{2}$ about the point $(2, 1)$.

Point A maps to ?

Point B maps to ?

Point C maps to ?

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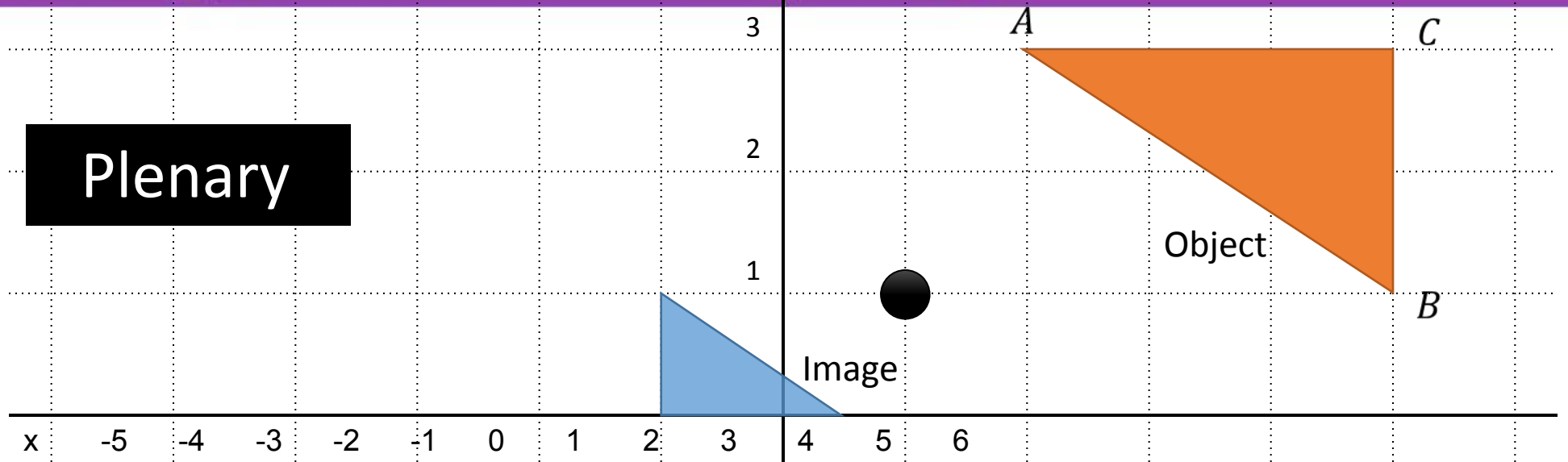
Enlargement – Center of enlargement

LO: enlarge a shape on a grid specified by a center when given a scale factor.

Plenary



Enlarge the shape by a scale of $-\frac{1}{2}$ about the point $(1, 1)$.

Point A maps to ?

Point B maps to ?

Point C maps to ?