

Coordinate Slide

Track every vertex in a translation.

GRADE 8 • 8.MG.3.a

8.MG.3.a "Given a preimage in the coordinate plane, identify the coordinates of the image of a polygon that has been translated vertically, horizontally, or a combination of both."

NAME _____

DATE _____

TRANSLATION RULE

A translation slides every vertex the same distance and direction. Add or subtract from each x-coordinate for a horizontal move and each y-coordinate for a vertical move.

WORKED EXAMPLE

Triangle A(1,2), B(6,1), and C(2,7) moves left 4 and up 3. Find its image.

1. Subtract 4 from each x-coordinate.
2. Add 3 to each y-coordinate.
3. A'(-3,5), B'(2,4), C'(-2,10).

Answer: A'(-3,5), B'(2,4), C'(-2,10)

PRACTICE 5 problems

- 1** Triangle A(0,8), B(8,8), and C(0,11) moves right 9. Find A', B', and C'.

ANSWER _____

- 2** Rectangle J(-9,17), K(-8,17), L(-8,19), and M(-9,19) moves down 8. Find the image.

ANSWER _____

- 3** Triangle D(30,-30), E(32,-28), and F(34,-32) moves left 14 and up 8. Find the image.

ANSWER _____

- 4** Rectangle E(30,20), F(34,20), G(34,26), and H(30,26) moves left 12 and down 9. Find the image.

ANSWER _____

- 5** Triangle U(-20,30), V(-16,30), and W(-18,34) follows $(x,y) \rightarrow (x-13,y+15)$. Find the image.

ANSWER _____

APPLY IT Show your work

- 1** On a video game map, a triangular safe zone has vertices $A(-30,40)$, $B(-24,40)$, and $C(-27,46)$. The map feature moves right 14 and down 16. What are the new coordinates?

WORK SPACE

ANSWER _____

- 2** A design club moves a rectangular sticker with vertices $J(40,-30)$, $K(48,-30)$, $L(48,-24)$, and $M(40,-24)$. It moves left 18 and up 12. What are the image coordinates?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Triangle $P(-20,30)$, $Q(-18,28)$, and $R(-24,34)$ is translated so P maps to $P'(-8,43)$. Identify the translation, then find Q' and R' .

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Triangle A(0,8), B(8,8), and C(0,11) moves right 9. Find A', B', and C'.	A'(9,8), B'(17,8), C'(9,11)
2	Rectangle J(-9,17), K(-8,17), L(-8,19), and M(-9,19) moves down 8. Find the image.	J'(-9,9), K'(-8,9), L'(-8,11), M'(-9,11)
3	Triangle D(30,-30), E(32,-28), and F(34,-32) moves left 14 and up 8. Find the image.	D'(16,-22), E'(18,-20), F'(20,-24)
4	Rectangle E(30,20), F(34,20), G(34,26), and H(30,26) moves left 12 and down 9. Find the image.	E'(18,11), F'(22,11), G'(22,17), H'(18,17)
5	Triangle U(-20,30), V(-16,30), and W(-18,34) follows $(x,y) \rightarrow (x-13,y+15)$. Find the image.	U'(-33,45), V'(-29,45), W'(-31,49)

PART 2 • APPLY IT

- A'(-16,24), B'(-10,24), C'(-13,30)** Add 14 to each x-coordinate and subtract 16 from each y-coordinate.
- J'(22,-18), K'(30,-18), L'(30,-12), M'(22,-12)** Subtract 18 from each x-coordinate and add 12 to each y-coordinate.

CHALLENGE

Translate right 12 and up 13. Q'(-6,41), R'(-12,47)

Accept coordinates in any vertex order if labels clearly match. A correct translation changes every vertex by the same horizontal and vertical amounts.