

INDEPENDENT VARIABLE

IDV WORKSHEETS



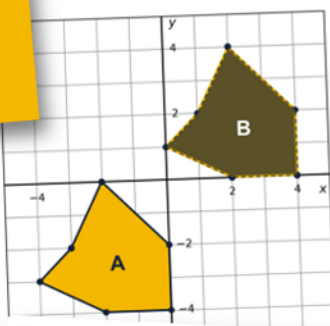
EXPLORING & PROVING CONGRUENCY

DEFINE IT | SPOT IT | PROVE IT WITH RIGID TRANSFORMATIONS

ANIMATED
POWERPOINT:
DOES THE WORK
FOR YOU!

FULL ANSWER
KEYS
INCLUDED

Prove it: congruent or not?



Congruent.

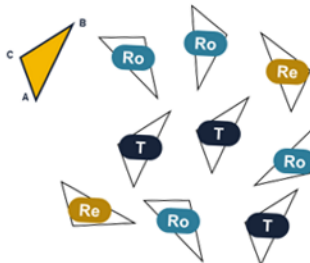
Translate right 4 and up 4 (x, y)

$$\rightarrow (x + 4, y + 4)$$

PART 1 • EXPLORING CONGRUENCY 2 SHEET

Name the Transformation

All are congruent to triangle ABC. Name the move to each one: rotation, reflection or translation.



12 EXAMPLE
PROBLEMS
5 PRACTICE
SHEETS

PROVE IT,
IDENTIFY IT
+ FIND THE
MISTAKE

MORE PRACTICE. LESS PREP. BETTER OUTCOMES.

Inside the Animated Lesson

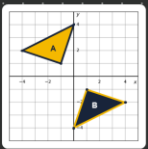
INDEPENDENT VARIABLE
GRADE 8 • GEOMETRY

EXPLORING & PROVING CONGRUENCY

DEFINE IT | SPOT IT | PROVE IT WITH RIGID TRANSFORMATIONS

Animated PowerPoint lesson
Explore, define, then prove (or disprove)
Practice sheets • full answer keys

MORE PRACTICE, LESS PREP, BETTER OUTCOMES.
idworksheets.com

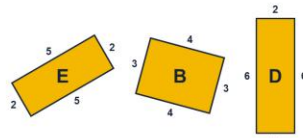


PART 1 • EXPLORING CONGRUENCY 1 SHEET
Same Area? Same Perimeter?

a. Which rectangles have the same area but different perimeter?
Rectangles B and D: area 12, perimeters 14 and 16.

b. Which rectangles have the same perimeter but different area?
Rectangles B and E: perimeter 14, areas 12 and 10.

c. What would a pair of shapes look like if they had the same area AND the same perimeter?
They could be exactly the same size and shape: that's what congruent means. (Not always, but it's a great start.)



© 2020 idworksheets.com | Independent Variable

PART 1 • EXPLORING CONGRUENCY 2 SHEET
Quick! Congruent or Not?

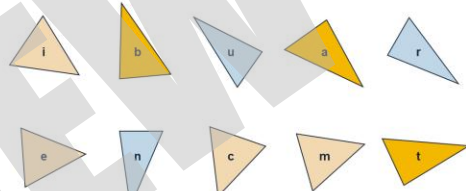
g. Say yes or no for each pair, quickly.

		Yes
		No
		Yes
		No
		No

© 2020 idworksheets.com | Independent Variable

PART 1 • EXPLORING CONGRUENCY 2 SHEET
Which Triangles Are Congruent?

Some of these triangles are congruent. Group the congruent ones. Each group spells a word!



bat are congruent • run are congruent • mice are congruent

© 2020 idworksheets.com | Independent Variable

PART 1 • EXPLORING CONGRUENCY 2 SHEET
Are These Faces Congruent?

Are these faces congruent? Explain your reasoning.

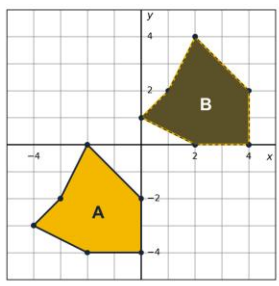


NO
B's face is wider. A rigid move never changes size.

© 2020 idworksheets.com | Independent Variable

PROVE IT • PROVE IT: CONGRUENT OR NOT? SHEET, BOX 1

1. Prove it: congruent or not?



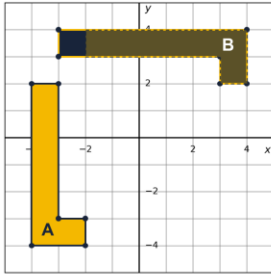
Congruent.

Translate right 4 and up 4 (x, y)
→ $(x + 4, y + 4)$

© 2020 idworksheets.com | Independent Variable

PROVE IT • PROVE IT: CONGRUENT OR NOT? SHEET, BOX 3

3. Prove it: congruent or not?



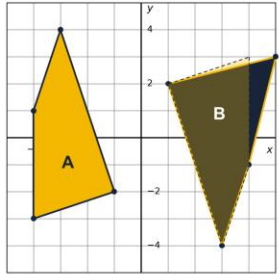
Not congruent.

The long side of B is 7 units, but the long side of A is only 6 units.
(Every other side matches.)

© 2020 idworksheets.com | Independent Variable

PROVE IT • PROVE IT: CONGRUENT OR NOT? SHEET, BOX 5

5. Prove it: congruent or not?

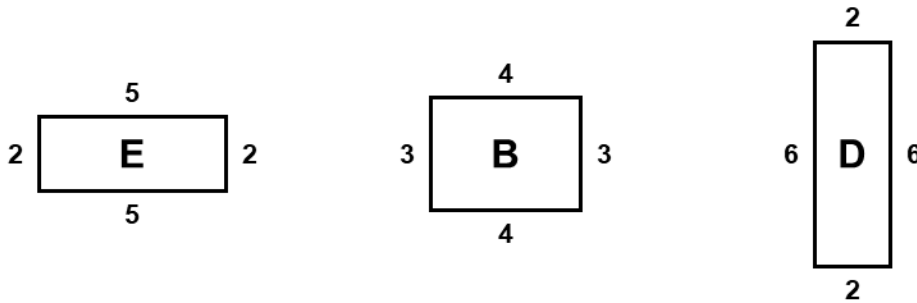


Not congruent.

After a 180° turn, three corners land on B but the fourth does not, so two of B's sides are a different length than the matching sides of A.

© 2020 idworksheets.com | Independent Variable

Directions: Answer each question about rectangles E, B and D.



a. Which rectangles have the same area but different perimeter?

b. Which rectangles have the same perimeter but different area?

c. What would a set of shapes look like if they had the same area and perimeter?

d. Draw two figures that have the same perimeter but different area.

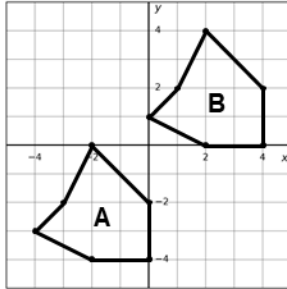
e. Draw two figures that have the same area but different perimeter.

Define congruent:

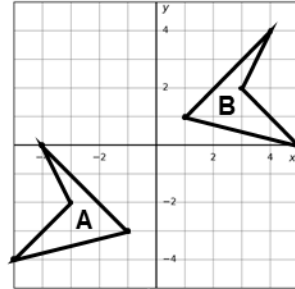
f. Given the definition of congruent, how can we prove that two figures are congruent?

Directions: Prove whether the two shapes are congruent. If they are, describe the transformations that prove it. If not, identify the characteristics that are different.

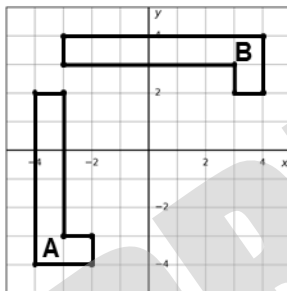
1. Prove it: congruent or not?



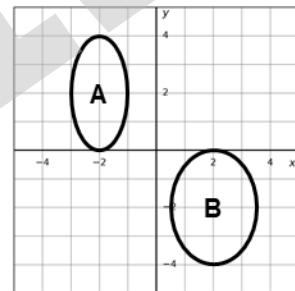
2. Prove it: congruent or not?



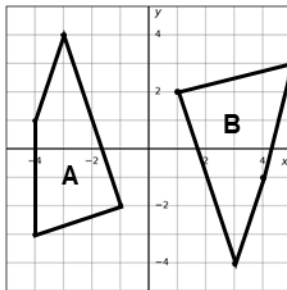
3. Prove it: congruent or not?



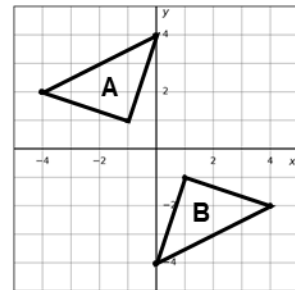
4. Prove it: congruent or not?



5. Prove it: congruent or not?



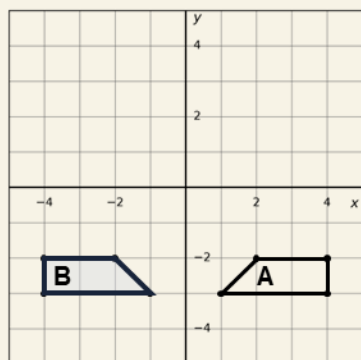
6. Prove it: congruent or not?



Directions: Study the two examples. Decide whether the two figures are congruent. If they are, write the move as a rule. If not, name what is different.

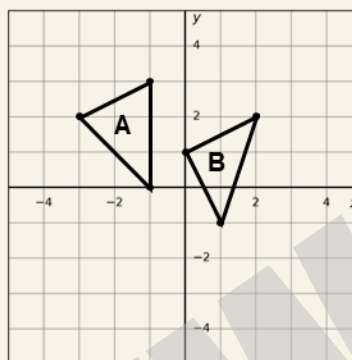
SHEET 1 OF 4 • CONGRUENT OR NOT

Example 1: Congruent or not? If congruent, describe the transformation(s). If not, name what is different.



Congruent.
 $(x, y) \rightarrow (-x, y)$

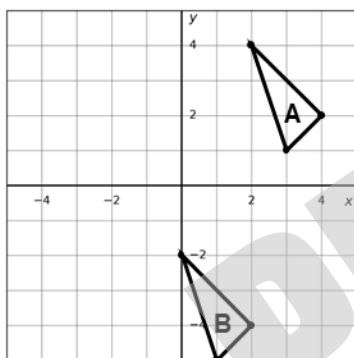
Example 2: Congruent or not? If congruent, describe the transformation(s). If not, name what is different.



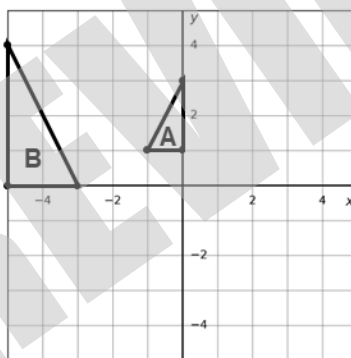
Not congruent. The side lengths are different: one side of A is 3 units long, but the matching side of B is slanted (3 across, 1 up or down).

Your turn

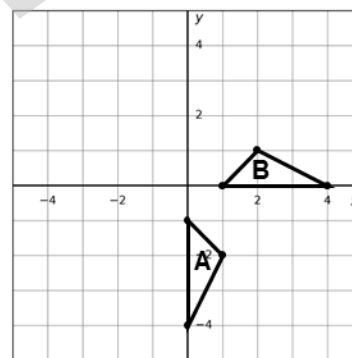
1. Congruent or not? Prove it.



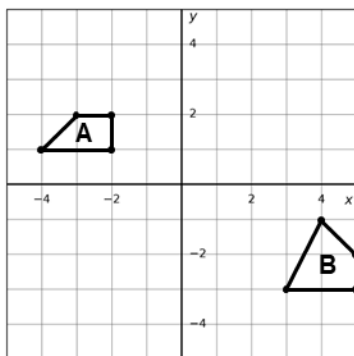
2. Congruent or not? Prove it.



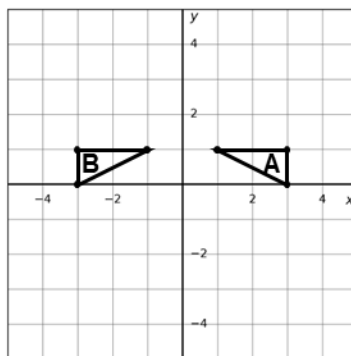
3. Congruent or not? Prove it.



4. Congruent or not? Prove it.



5. Congruent or not? Prove it.



6. Congruent or not? Prove it.

