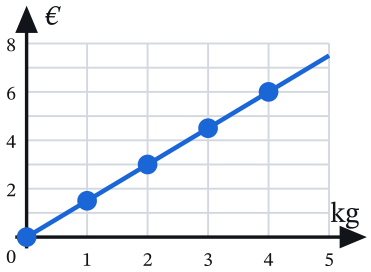
Names (pair) _____ Date _____

Proportional Relationships: $y = kx$

Example

kg	0	1	2	3	4
€	0	1.5	3	4.5	6

Apples cost 1.50 € per kilogram. The ratio of price to mass is always the same:
$3 \div 2 = 6 \div 4 = 1.5$.



Remember

Two quantities are **proportional** if the ratio $y \div x$ is always the same number k. Then $y = kx$. The graph is a line **through the origin**. When x doubles, y doubles too.

1 IN PAIRS Work out the ratios $y \div x$. Is the relationship proportional?

A

x	2	4	6	8
y	5	10	15	20
$y \div x$	☐	☐	☐	☐

yes / no

B

x	1	2	3	4
y	4	6	8	10
$y \div x$	☐	☐	☐	☐

yes / no

C

x	1	2	4	5
y	3	6	12	15
$y \div x$	☐	☐	☐	☐

yes / no

D

x	1	2	3	4
y	1	4	9	16
$y \div x$	☐	☐	☐	☐

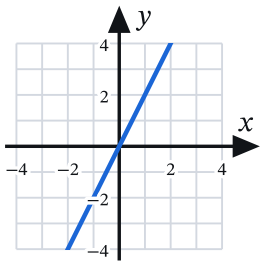
yes / no

2 IN PAIRS Taxi: 3 € to start and 1 € per kilometre. A 2 km ride costs 5 €. Marko says: “Then 4 km costs 10 €.” Is he right? Explain.

Names (pair) _____ Date _____

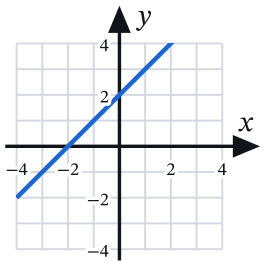
3 ON YOUR OWN Which graph shows a proportional relationship? Circle.

a)



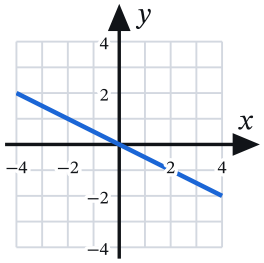
yes / no

b)



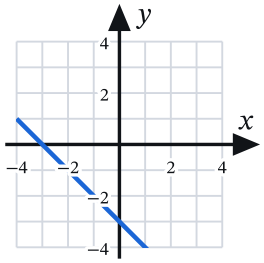
yes / no

c)



yes / no

d)



yes / no

4 ON YOUR OWN The quantities are proportional. Complete the table and find k.

x	2	5	☐	10
y	6	☐	21	☐

$k =$ ☐ $y =$ ☐

5 ON YOUR OWN 4 pancakes need 100 g of flour. Write the mass of flour y (in g) for x pancakes and work out how much flour 10 pancakes need.

$y =$ ☐ for 10 pancakes: ☐ g

The Line Explorer app · otooly.com/line-explorer

Set $b = 0$ and change m. Keep the lines for $m = 2$, $m = 1$ and $m = \frac{1}{2}$. What do they have in common?

★ ON YOUR OWN **Exit card.** For $y = 4x$ and $x = 3$, $y =$ ☐. Is $y = 4x + 1$ a proportional relationship? **yes** / **no**