Graphing Ratios

Graphing ratios: Applications and decisions

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Put the first quantity on the horizontal axis and the second on the vertical axis. If $y = 2x$, the ratio pairs $(0, 0), (1, 2), (2, 4)$ lie on a straight line through the origin. Plot x first, then y.

Worked example

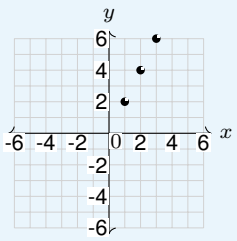
For $y = 2x$, list the pairs for $x = 1, 2, 3$ and plot them.

1. Use $y = 2x$: $y = 2 \times 1 = 2$ for $x = 1$.

2. For the other inputs, $y = 2 \times 2 = 4$; $y = 2 \times 3 = 6$.

Include $(0, 0)$ because both quantities start at zero.

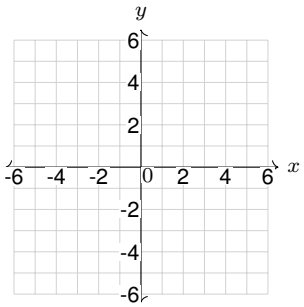
Answer: $(1, 2), (2, 4), (3, 6)$.



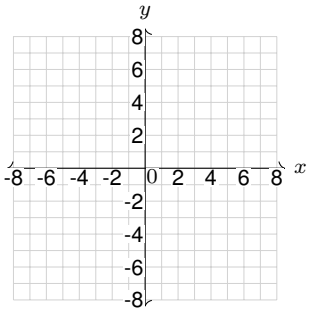
Practice Problems

Show your thinking.

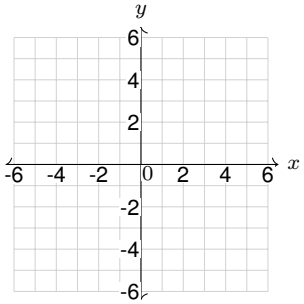
1. Each bag holds 3 kg. Plot bags on x and total kg on y for $0, 1, 2$ bags.



2. Each minute a tap gives 2 L. Graph liters for $0, 2, 4$ minutes.

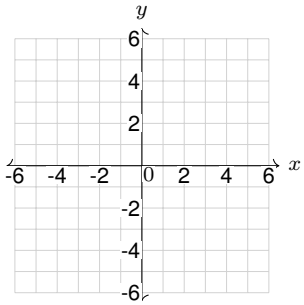


3. A walker goes 1 km each hour. Design the distance graph for $0, 3, 6$ hours.



4. A ticket graph contains $(3, 6)$, with tickets on x and dollars on y. Can 5 tickets be bought for 9 dollars?

5. A frame uses 2 meters of trim. Graph trim needed for $0, 1, 3$ frames.



6. A travel graph gives $(2, 8)$ and $(3, 12)$, hours then km. Which distance should appear at 5 hours?

Answer Key

1. $(0, 0), (1, 3), (2, 6)$.
2. $(0, 0), (2, 4), (4, 8)$.
3. $(0, 0), (3, 3), (6, 6)$.
4. No; 5 tickets cost 10 dollars.
5. $(0, 0), (1, 2), (3, 6)$.
6. 20 km.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Use $y = 3x$: $y = 3 \times 0 = 0$ for $x = 0$.
2. For the other inputs, $y = 3 \times 1 = 3$; $y = 3 \times 2 = 6$. Include $(0, 0)$ because both quantities start at zero.

Problem 2

1. Use $y = 2x$: $y = 2 \times 0 = 0$ for $x = 0$.
2. For the other inputs, $y = 2 \times 2 = 4$; $y = 2 \times 4 = 8$. Include $(0, 0)$ because both quantities start at zero.

Problem 3

1. Use $y = 1x$: $y = 1 \times 0 = 0$ for $x = 0$.
2. For the other inputs, $y = 1 \times 3 = 3$; $y = 1 \times 6 = 6$. Include $(0, 0)$ because both quantities start at zero.

Problem 4

1. Price $= 6 \div 3 = 2$ dollars/ticket.
2. $5 \times 2 = 10$ dollars, which is $10 - 9 = 1$ dollar above the budget.

Problem 5

1. Use $y = 2x$: $y = 2 \times 0 = 0$ for $x = 0$.
2. For the other inputs, $y = 2 \times 1 = 2$; $y = 2 \times 3 = 6$. Include $(0, 0)$ because both quantities start at zero.

Problem 6

1. $8 \div 2 = 4$ km/h and $12 \div 3 = 4$ km/h.
2. At 5 hours, $4 \times 5 = 20$ km, so the point is $(5, 20)$.

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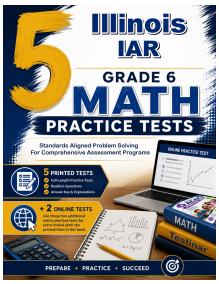

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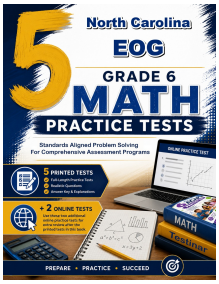

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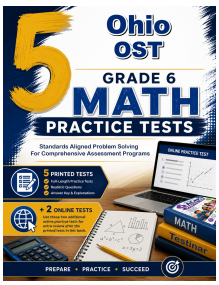

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