

Direct proportion - Worksheet

Skill

Group A - Finding the value of items

Work out:

1) 5 items cost 30p.

Find the cost of 7 items.

2) 5 items cost 30p.

Find the cost of 4 items.

3) 5 items cost 30p.

Find the cost of 9 items.

4) 2 items cost 36p.

Find the cost of 5 items.

5) 9 items cost 36p.

Find the cost of 5 items.

6) 12 items cost 36p.

Find the cost of 5 items.

7) 6 items cost 90p.

Find the cost of 4 items.

8) 6 items cost 90p.

Find the cost of 11 items.

9) 6 items cost 90p.

Find the cost of 20 items.

10) 3 items cost £1. 20.

Find the cost of 9 items.

11) 4 items cost £1. 20.

Find the cost of 9 items.

12) 10 items cost £1. 20.

Find the cost of 9 items.

Group B - Direct proportion equations

Work out:

1) $y = 4x$

Work out the value of y
when $x = 5$.

2) $y = 4x$

Work out the value of y
when $x = 6$.

3) $y = 4x$

Work out the value of y
when $x = 11$.

4) $y = 5x$

Work out the value of y
when $x = 3$.

5) $y = 6x$

Work out the value of y
when $x = 3$.

6) $y = 9x$

Work out the value of y
when $x = 3$.

7) $y = 6x$

Work out the value of y
when $x = 2$.

8) $y = 6x$

Work out the value of y
when $x = 6$.

9) $y = 6x$

Work out the value of y
when $x = 9$.

10) $y = 4x$

Work out the value of y
when $x = 7$.

11) $y = 8x$

Work out the value of y
when $x = 7$.

12) $y = 15x$

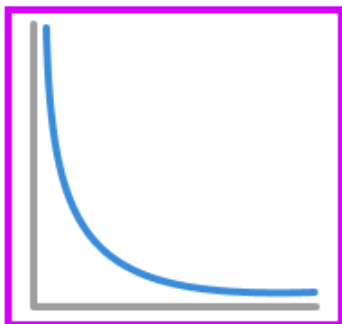
Work out the value of y
when $x = 7$.

Direct proportion - Worksheet

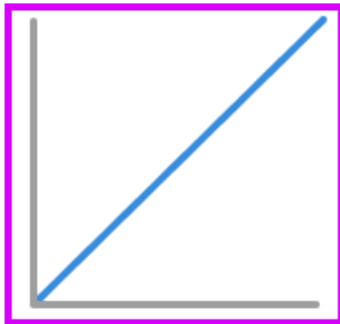
Group C - Direct proportion graphs

Identify the graphs representing direct proportion:

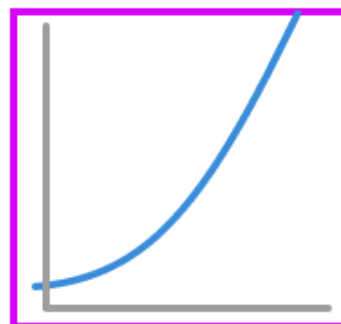
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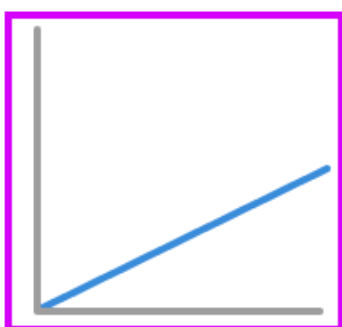
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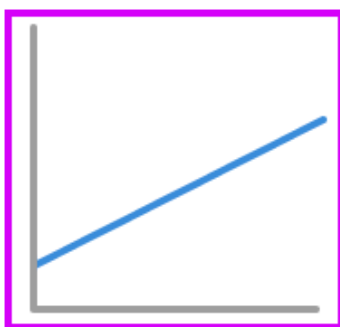
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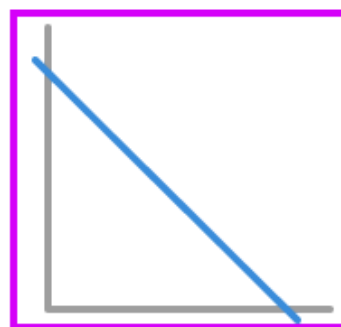
4)



5)



6)



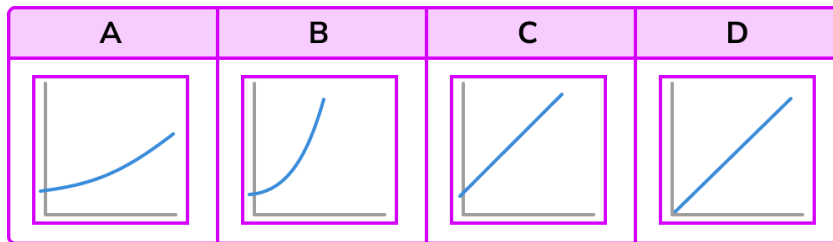
Direct proportion - Worksheet

Applied

- 1)** **(a)** 4 pears cost £2.80. Find the cost of 9 pears.
- (b)** 5 apples cost £2.40. Find the cost of 7 apples.
-
- 2)** **(a)** 5 packets of seeds weigh 400 grams.
 Find the weight of 7 packets of seeds.
- (b)** 8 packets of dried fruit weigh 480 grams.
 Find the weight of 5 packets of dried fruit.
-
- 3)** **(a)** y is directly proportional to x .
 y is given by the formula $y = 5x$,
 Find the value of y when $x = 8$.
- (b)** c is directly proportional to r .
 c is given by the formula $c = 6r$.
 Find the value of c when $r = 4.2$.
-
- 4)** **(a)** y is directly proportional to x^2 .
 y is given by the formula $y = 5x^2$.
 Find the value of y when $x = 3$.
- (b)** a is directly proportional to r^2 .
 a is given by the formula $a = 3r^2$.
 Find the value of a when $r = 7.8$.

Direct proportion - Exam Questions

- 1) Here are four graphs.



State which graph represents direct proportionality.

.....
(1 mark)

- 2) 500 sheets of paper weigh 2.4 kg.
Work out the weight of 60 sheets of paper.

.....kg
(2 marks)

- 3) m is directly proportional to p^2 .
 m is given by the formula: $m = 50p^2$
Work out the value of m when $p = 3$.

.....
(2 marks)

Direct proportion - Exam Questions

- 4) A recipe for lemon cheesecake needs 240 grams of soft cheese.
The lemon cheesecake will have 8 proportions.

Soft cheese is sold in 300 gram packets.
The packets cost £1.45 each.

Penny wants to make enough lemon cheesecake for 24 portions.
Calculate the cost of soft cheese for Penny to make 24 portions
of cheesecake.

.....
(4 marks)

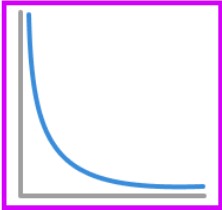
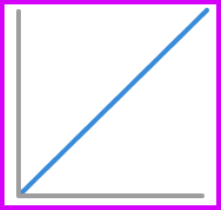
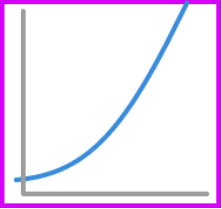
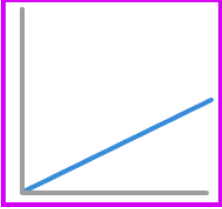
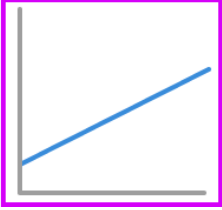
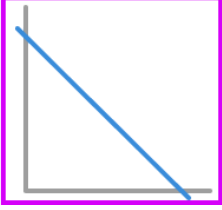
Direct proportion - Answers

	Question	Answer
	Skill Questions	
Group A	Work out: 1) 5 items cost 30p. Find the cost of 7 items. 2) 5 items cost 30p. Find the cost of 4 items. 3) 5 items cost 30p. Find the cost of 9 items. 4) 2 items cost 36p. Find the cost of 5 items. 5) 9 items cost 36p. Find the cost of 5 items. 6) 12 items cost 36p. Find the cost of 5 items. 7) 6 items cost 90p. Find the cost of 4 items. 8) 6 items cost 90p. Find the cost of 11 items. 9) 6 items cost 90p. Find the cost of 20 items. 10) 3 items cost £1. 20. Find the cost of 9 items. 11) 4 items cost £1. 20. Find the cost of 9 items. 12) 10 items cost £1. 20. Find the cost of 9 items.	1) 42p 2) 24p 3) 54p 4) 90p 5) 20p 6) 15p 7) 60p 8) £1. 65 9) £3. 00 10) £3. 60 11) £2. 70 12) £1. 08

Direct proportion - Answers

Group B	Work out: 1) $y = 4x$. Work out the value of y when $x = 5$. 2) $y = 4x$. Work out the value of y when $x = 6$. 3) $y = 4x$. Work out the value of y when $x = 11$. 4) $y = 5x$. Work out the value of y when $x = 3$. 5) $y = 6x$. Work out the value of y when $x = 3$. 6) $y = 9x$. Work out the value of y when $x = 3$. 7) $y = 6x$. Work out the value of y when $x = 2$. 8) $y = 6x$. Work out the value of y when $x = 6$. 9) $y = 6x$. Work out the value of y when $x = 9$. 10) $y = 4x$. Work out the value of y when $x = 7$. 11) $y = 8x$. Work out the value of y when $x = 7$. 12) $y = 15x$. Work out the value of y when $x = 7$.	1) $y = 20$ 2) $y = 24$ 3) $y = 44$ 4) $y = 15$ 5) $y = 18$ 6) $y = 27$ 7) $y = 12$ 8) $y = 36$ 9) $y = 54$ 10) $y = 28$ 11) $y = 56$ 12) $y = 105$
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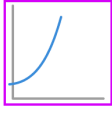
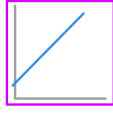
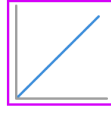
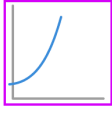
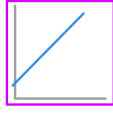
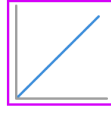
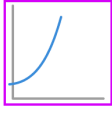
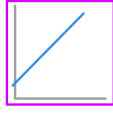
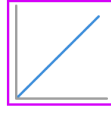
Direct proportion - Answers

Group C	Identify the graphs representing direct proportion: 1)  2)  3)  4)  5)  6) 	1) No 2) Yes 3) No 4) Yes 5) No 6) No
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Direct proportion - Answers

	Question	Answer
	Applied Questions	
1)	a) 4 pears cost £2.80. Find the cost of 9 pears. b) 5 apples cost £2.40. Find the cost of 7 apples.	a) £6.30 b) £3.36
2)	a) 5 packets of seeds weigh 400 grams. Find the weight of 7 packets of seeds. b) 8 packets of dried fruit weigh 480 grams. Find the weight of 5 packets of dried fruit.	a) 560 grams b) 300 grams
3)	a) y is directly proportional to x . y is given by the formula $y = 5x$. Find the value of y when $x = 8$. b) c is directly proportional to r . c is given by the formula $c = 6r$. Find the value of c when $r = 4.2$.	a) $5 \times 8 = 40$ b) $6 \times 4.2 = 25.2$
4)	a) y is directly proportional to x^2 . y is given by the formula $y = 5x^2$. Find the value of y when $x = 3$. b) a is directly proportional to r^2 . a is given by the formula $a = 3r^2$. Find the value of a when $r = 7.8$.	a) $5 \times 3^2 = 45$ b) $3 \times 7.8^2 = 182.52$

Direct proportion - Mark Scheme

	Question	Answer									
	Exam Questions										
1)	Here are four graphs. <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">A</th><th style="padding: 5px;">B</th><th style="padding: 5px;">C</th><th style="padding: 5px;">D</th></tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 10px;"></td><td style="text-align: center; padding: 10px;"></td><td style="text-align: center; padding: 10px;"></td><td style="text-align: center; padding: 10px;"></td></tr> </tbody> </table> State which graph represents direct proportionality.	A	B	C	D					D	(1)
A	B	C	D								
											
2)	500 sheets of paper weigh 2.4 kg. Work out the weight of 60 sheets of paper.	$2.4 \div 500 \times 60$ $= 0.288 \text{ kg (accept 288g)}$	(1) (1)								
3)	m is directly proportional to p^2. m is given by the formula $m = 50p^2$ Work out the value of m when $p = 3$.	50×3^2 450	(1) (1)								
4)	A recipe for lemon cheesecake needs 240 grams of soft cheese. The lemon cheesecake will have 8 portions. Soft cheese is sold in 300 gram packets. The packets cost £1.45 each. Penny wants to make enough lemon cheesecake for 24 portions. Calculate the cost of soft cheese for Penny to make 24 portions of cheesecake.	The amount of soft cheese needed: $240 \div 8 \times 24$ $= 720 \text{ grams}$ $"3" \times 1.45$ £4.35	(1) (1) (1) (1)								

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