# Proportion

I can.....

1	Pipe costs £4.50 per metre a) Work out the cost of 8m of pipe. b) Work out the cost of 0.5m of pipe.	★ Solve problems using direct proportion
2	3m of ribbon costs £7.05 a) How much would 1m of ribbon cost? b) How much would 7m of ribbon cost?	
3	A shop sells 3 different types of coffee beans 200 g of Kenyan beans cost £2.50 300 g of Columbian beans cost £4.20 150 g of Italian beans cost £1.95 a) Work out the cost of 100g of each type of bean b) Which type of bean is the cheapest?	★★ Work out the 'best buy'

4	Two shops sell home made soap
	   Shop A sells 200 g of soap for £4.40
	   Shop B sells 125 g of soap for £2.50
	
	Which shop is best value for money?	

5	Sausages are sold in packs of 6 for £3.30 or packs of 8 for £4.00 Which size pack is the better value for money?	
6	A recipe for biscuits uses 300 g of sugar to make 12 biscuits How much sugar is needed to make 15 biscuits?	★★ Use proportion to change recipes and ingredient quantities
7	A recipe for bolognaise for 6 people uses 390 g of minced beef. How much minced beef is needed to make bolognaise for 10 people?	
8	Keegan goes on holiday to France. The exchange rate is £1 = €1.20 a) If Keegan changes £520 into Euros, how many Euros will he get? b) After his holiday Keegan changes €84.00 back into pounds. How many pounds does he get?	
9	Jess is in Miami and pays $16.20 for a burger. If the exchange rate is £1=$1.35 how much is this in pounds?	★★ Use exchange rates

10 | The following conversion graph is for changing miles into kilometres
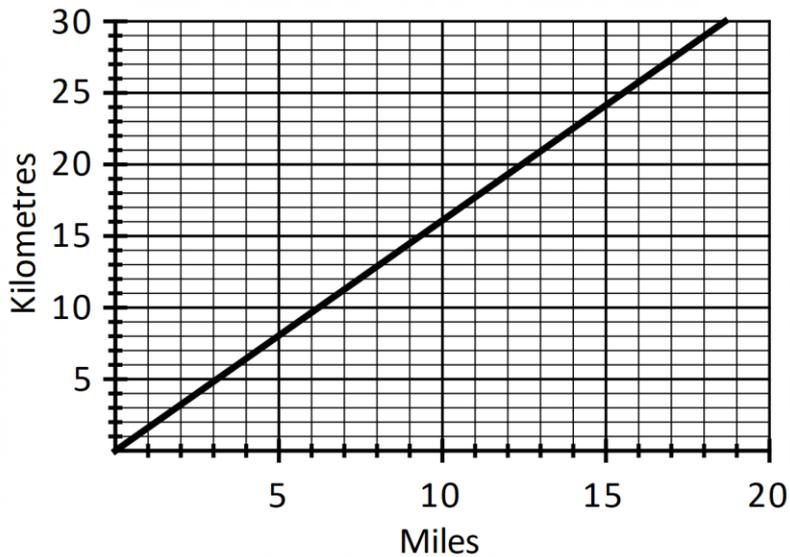
Use the graph to complete the following
a) 5 miles =
b) 24 km =
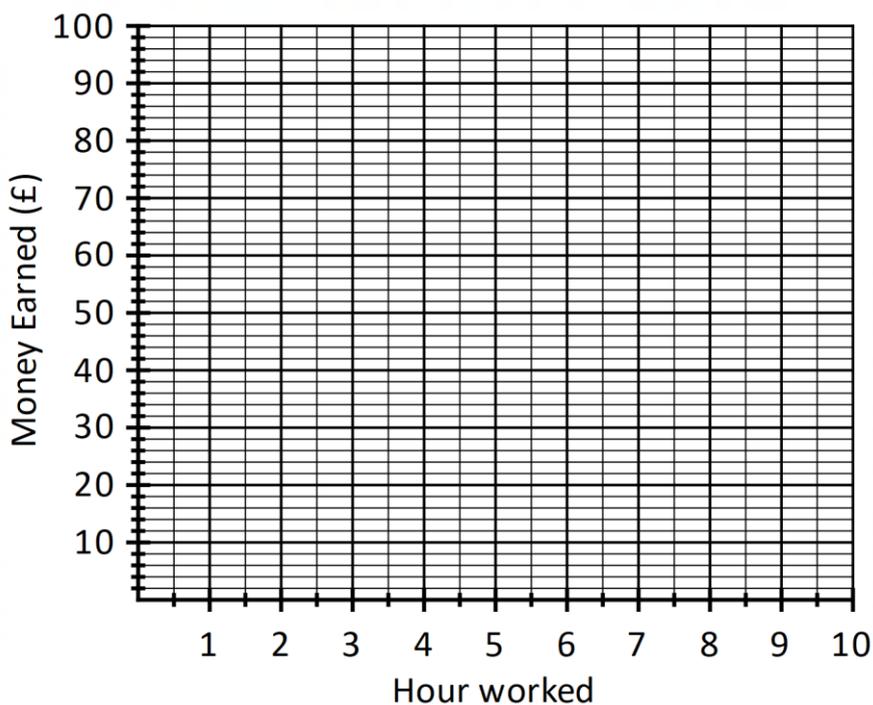c) 45 miles =

11 | Jai earns £9.75 per hour
a) Complete the table of values

Hours worked	2	5	8
Money earned			

b) Use the pairs of values to plot a conversion graph.

★★
Plot and use conversion graphs

12	If it takes 5 workers 4 days to build a fence, how long would it take 2 workers if they worked at the same rate?	★★ Solve problems using inverse proportion
13	If there are 5 builders it takes them 60 days to build a house. How many builders would be needed to build a house in 15 days?	
14	Jake has enough cat food to feed his 3 cats for 16 days. He then agrees to look after another cat. How long will the food last between the 4 cats?	

15	Megan is making cookies to make 12 large cookies the recipe uses

225 g of butter   275 g of plain flour
110 g of caster sugar   75g of chocolate chips

If Megan has the following ingredients what is the maximum number of cookies she can make?
400g of butter   450 g of plain flour
300g of caster sugar   200 g of chocolate chips

16	Mr Monza has the option of 2 different electricity providers

Supplier A   **Supplier B**
No fixed charge   **Monthly fixed charge : £5.00**
Price per unit : 15 p   **Price per unit : 12 p**

If Mr Monza uses 210 units of electricity per month, which supplier will be the cheapest?

17	Three taxi companies charge in the following way	★★★ Problem solving

Company A   **Company B**   **Company C**
£1.15 per mile   **Fixed Charge £2.50**   **First 5 miles £1.40 per mile**
                                        + £1.10 per mile   **rest of the journey £0.95 per mile**

Which would be the cheapest company to use for a journey of 18 miles?

18	Which graph could represent the following?

a)   y is directly proportional to x
b)   y is inversely proportional to x

Proportion   ANSWERS   Foundation : Number

I can…..

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1	Pipe costs £4.50 per metre a) Work out the cost of 8m of pipe. £36.00 b) Work out the cost of 0.5m of pipe. £2.25	★ Solve problems using direct proportion
2	3m of ribbon costs £7.05 a) How much would 1m of ribbon cost? £2.35 b) How much would 7m of ribbon cost? £16.45	

3	A shop sells 3 different types of coffee beans
	
	    200 g of Kenyan beans cost £2.50 £1.25
	    300 g of Columbian beans cost £4.20 £1.40
	    150 g of Italian beans cost £1.95 £1.30
	
	a) Work out the cost of 100g of each type of bean
	
	b) Which type of bean is the cheapest? Kenyan
		★
		Work out the 'best buy'

4	Two shops sell home made soap
	    Shop A sells 200 g of soap for £4.40 £2.20 per 100g
	    Shop B sells 125 g of soap for £2.50 £2.00 per 100g
	
	Which shop is best value for money? Shop B	

5	Sausages are sold in packs of 6 for £3.30 or packs of 8 for £4.00 Which size pack is the better value for money? 3.30÷6 = £0.55 4.00÷8 = £0.50 8 pack is best value	
6	A recipe for biscuits uses 300 g of sugar to make 12 biscuits How much sugar is needed to make 15 biscuits? 375 g	Use proportion to change recipes and ingredient quantities
7	A recipe for bolognaise for 6 people uses 390 g of minced beef. How much minced beef is needed to make bolognaise for 10 people? 650g	
8	Keegan goes on holiday to France. The exchange rate is £1 = €1.20 a) If Keegan changes £520 into Euros, how many Euros will he get? €624 b) After his holiday Keegan changes €84.00 back into pounds. How many pounds does he get? £70	
9	Jess is in Miami and pays $16.20 for a burger. If the exchange rate is £1=$1.35 how much is this in pounds? £12.00	Use exchange rates

10 | The following conversion graph is for changing miles into kilometres
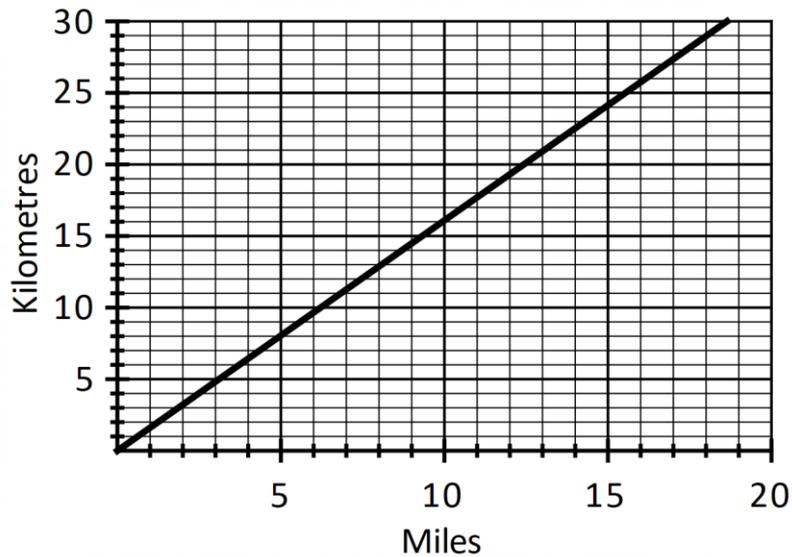
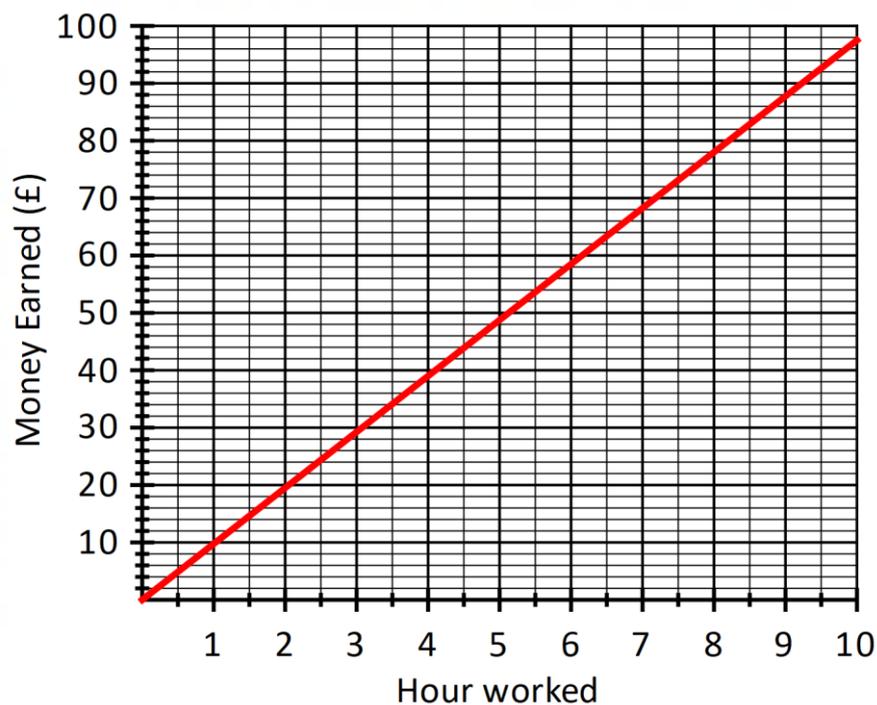Use the graph to complete the following
a) 5 miles = 8 km
b) 24 km = 15 miles
c) 45 miles = 72 km

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11 | Jai earns £9.75 per hour
a) Complete the table of values

Hours worked	2	5	8
Money earned	£19.50	£48.75	£78

b) Use the pairs of values to plot a conversion graph.

★★
Plot and use conversion graphs

12	If it takes 5 workers 4 days to build a fence, how long would it take 2 workers if they worked at the same rate? 10 days	★★ Solve problems using inverse proportion
13	If there are 5 builders it takes them 60 days to build a house. How many builders would be needed to build a house in 15 days? 20 builders	
14	Jake has enough cat food to feed his 3 cats for 16 days. He then agrees to look after another cat. How long will the food last between the 4 cats? 12 days	

15	Megan is making cookies to make 12 large cookies the recipe uses

225 g of butter   275 g of plain flour
110 g of caster sugar   75g of chocolate chips

If Megan has the following ingredients what is the maximum number of cookies she can make?

400g of butter 21   450 g of plain flour   **19**
300g of caster sugar 32   200 g of chocolate chips 32
19 cookies

16	Mr Monza has the option of 2 different electricity providers

Supplier A   **Supplier B**
No fixed charge   **Monthly fixed charge : £5.00**
Price per unit : 15 p   **Price per unit : 12 p**

If Mr Monza uses 210 units of electricity per month, which supplier will be the cheapest?   A : $210 \times 0.15 = £31.50$ B : $5 + 210 \times 0.12 = £30.20$
                   Company B is the cheapest

17	Three taxi companies charge in the following way	★★★ Problem solving

Company A   **Company B**   **Company C**
£1.15 per mile   **Fixed Charge £2.50**   **First 5 miles £1.40 per mile**
                   + £1.10 per mile   **rest of the journey £0.95 per mile**

Which would be the cheapest company to use for a journey of 18 miles?
Company A : $£18 \times 1.15 = £20.70$ Company B : $2.50 + 18 \times 1.10 = £22.30$
Company C : $5 \times 1.4 + 13 \times 0.95 = £19.35$
Company C is the cheapest

18	Which graph could represent the following?

a) y is directly proportional to x A
b) y is inversely proportional to x   C