

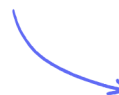
Exam Questions

Direct & Inverse Proportion

Direct & Inverse Proportion

Easy (5 questions)	/10
Medium (8 questions)	/30
Hard (5 questions)	/27
Total Marks	/67

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Easy Questions

- 1 A particular type of potato costs £4.30 for 5 kg.

Tanya buys 2 kg of potatoes.

Work out how much Tanya pays.

(2 marks)

- 2 It takes 2 tilers 6 hours to tile a bathroom.

(i) How long will it take 4 tilers to tile the same bathroom?

[1]

(ii) How long will it take 3 tilers to tile the same bathroom?

[1]

(iii) What assumption has been made when answering parts (i) and (ii) ?

[1]

(3 marks)

- 3 y is directly proportional to x .

Complete the table.

x	2	4	
y		12	48

(2 marks)

- 4 y is inversely proportional to x .

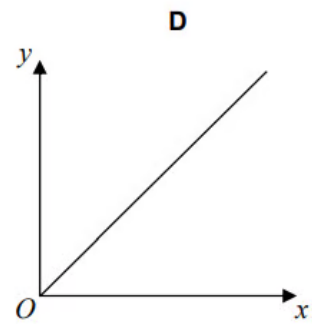
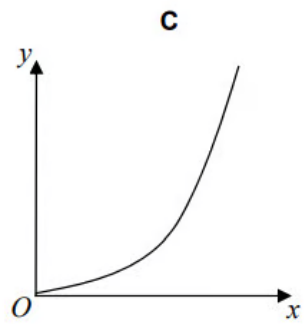
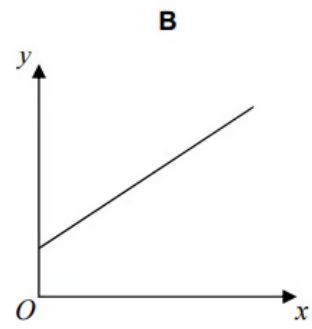
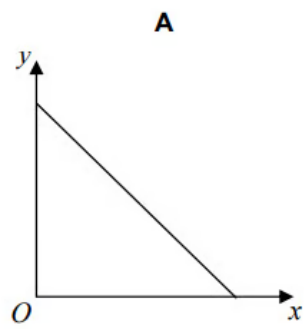
Complete the table.

x	12	6	
y		4	8

(2 marks)

- 5 y is directly proportional to x .

Which graph shows this?



(1 mark)

Medium Questions

- 1 (a)** There are 25 children in a nursery.

Rules state that there can be a maximum of 6 children per adult.

Find the minimum number of adults needed in the nursery.

(2 marks)

- (b)** 5 more children join the nursery.

Does this mean that more adults are needed in the nursery?

You must give a reason for your answer.

(1 mark)

- (c)** An equation is used to model the minimum number of adults needed for a class of children.

The equation is $y = 6x$.

- (i) State what each of the variables, x and y , represent in the context of this problem.

[2]

- (ii) State a condition on the type of numbers that can be used for x and y .

[1]

(3 marks)

2 Nikki has a large bottle of soap.

There are 2.5 litres of soap in the large bottle.

Nikki also has some small bottles that are empty.

Each small bottle can be completely filled with 200 ml of soap.

(i) How many small bottles can be completely filled with shampoo from the large bottle?

[2]

(ii) How many millilitres of soap will be left in the large bottle if this many small bottles are filled?

[1]

(3 marks)

3 Here is a list of ingredients to make 12 pancakes.

110g	flour
2	eggs
200 ml	milk
50g	butter

Complete the list of ingredients below to make 30 pancakes.

.....g	flour
.....	eggs
.....ml	milk
.....g	butter

(3 marks)

4 Carol makes birthday cards.

Each card takes the same amount of time to make.

She makes 3 cards in 48 minutes.

She has an order for 80 cards.

Can she complete this order in 3 days if she works 8 hours each day?

Show how you decide.

..... because

(5 marks)

- 5** Sam and two friends put letters in envelopes on Monday.
The three of them take two hours to put 600 letters in envelopes.

On Tuesday Sam has three friends helping.

Working at the same rate, how many letters should the **four** of them be able to put in envelopes in two hours?

(2 marks)

- 6** A printer uses 12 ml of ink to print 20 black and white pages.

It uses 15 ml of ink to print 30 colour pages.

Amir prints 50 black and white pages and 70 colour pages.

Work out the total amount of ink used to print all the pages.

(3 marks)

- 7** Palak and Marya are painting fences.

Palak paints 5 metres of fence every 8 minutes.

Marya paints 9 metres of fence every 12 minutes.

On Wednesday:

Palak paints for 10 hours

Marya paints for 7 hours

Work out the total number of metres of fence painted by both Palak and Marya on Wednesday.

(3 marks)

8 (a) A group of volunteers are making and selling jewellery to fundraise for charity.

In one hour, they can make 1200 necklaces or 1440 bracelets.

They start working at 11 am. They take no breaks.

They make 1800 necklaces and then switch to making bracelets. How many bracelets will the volunteers make by 4 pm?

(4 marks)

(b) State one assumption that you have made in part (a).

(1 mark)

Hard Questions

- 1** Machines A and B both make parts in a factory.

Machine A makes 8 parts every 12 minutes.

Machine B makes 14 parts every 20 minutes.

On Wednesday,

- Machine A makes parts for 11 hours
- Machine B makes parts for 9 hours

Work out the total number of parts made by the two machines on Wednesday.

(5 marks)

- 2 (a)** It would take 132 minutes to fill a swimming pool using water from 6 taps.

How long will it take to fill the pool if only 5 taps are used?

State your answer in minutes and seconds.

(2 marks)

- (b)** State one assumption you made in working out your answer to part (a).

(1 mark)

3 (a) A team of workers are fixing a road surface.

It takes 5 workers 16 hours to fix 1.2 miles of road.

The total pay for the team is £1200.

Calculate how long it would take 8 workers to fix 12 miles of road.

(3 marks)

(b) Calculate the total pay for the team of 8 workers, for fixing 12 miles of road.

(2 marks)

(c) State 2 assumptions you have made when answering the previous parts of this question.

(2 marks)

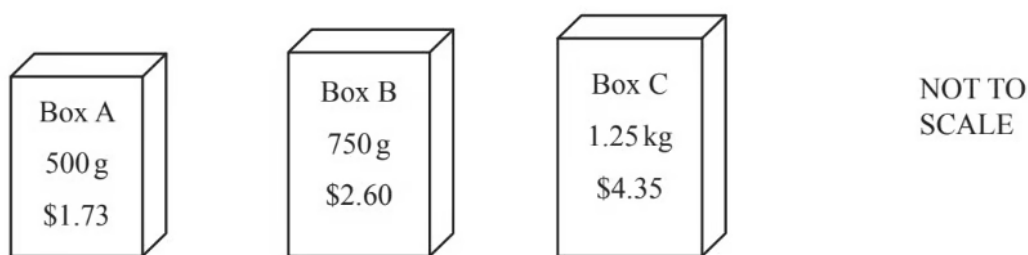
- 4 (a)** 100 g of cereal contains 360 kilocalories.
 100ml of milk contains 45 kilocalories.
 For breakfast Sasha has 35 g of cereal with 180ml of milk.

Work out the number of kilocalories Sasha has for breakfast.

..... kcal

(3 marks)

- (b)** A shop sells cereal in boxes A, B and C.



Work out which box is the best value.
 You must show all your working.

Box

(3 marks)

5 (a) Donald swims 3 lengths of a swimming pool in 93 seconds.

(i) Use this information to show that he could swim 100 lengths in under 55 minutes.

[4]

(ii) What assumption did you make in part (i)?

[1]

(5 marks)

(b) Donald tries to swim the 100 lengths in under 55 minutes.

Suggest one reason why he might not achieve this.

(1 mark)