

Reverse Percentages



REVISE THIS TOPIC

1 A company's profit this year is £246,400. This is a 12% increase from last year.

Work out the profit last year.

$$x \times 1.12 = 246400$$

$$x = \frac{246400}{1.17}$$

220,000 Answer £

A laptop is on sale for £816 after a 15% discount has been applied. 2

Work out the original price of the laptop.

[3 marks]

$$x \times 0.85 = 816$$

$$\chi = 816$$

$$0.85$$

960 Answer £

3 The value of a car is now £12,240. This is a 32% **reduction** from its original value.

Work out the **original value** of the car.

$$x = 12240$$



18,000 Answer £



4	The number of subscribers to a channel is 540,000.
	This is 25% more than the number of subscribers last year

Work out how many subscribers the channel had last year.

[3 marks]

$$x \times 1.25 = 540,000$$

$$\chi = \frac{540000}{1.25}$$

432,000 Answer

5 Emma has 396 followers on social media. This is 10% **fewer** than Josh.

Work out how many followers **Josh** has on social media.

[3 marks]

$$x \times 0.9 = 396$$

$$x = \frac{396}{0.0}$$

Answer

On Wednesday, a factory produced 1,054 toys. 6 This is 15% less than on Tuesday.

Work out how many toys the factory produced on **Tuesday**.

[3 marks]

$$x \times 0.85 = 1054$$

$$x = \frac{1054}{0.85}$$

1240 Answer





7 35% of a number is 42

Work out the number.

[3 marks]



$$\frac{10\%}{10\%} = 42$$

$$\frac{5\%}{5\%} = 6$$

$$\frac{10\%}{10\%} = 12$$

$$\frac{10\%}{100\%} = 120$$

Answer 120

8 11% of a number is 27.5

Work out the number.

[3 marks]

$$\frac{11}{\sqrt{3}} = \frac{1}{\sqrt{3}} = \frac{$$

Answer 25 0

9 30% of a number is 55.5

Work out 140% of the number.

[3 marks]

Answer 259



18

Turn over ▶



10 Mia ran 56.7 km this week.

This is 35% more than last week.

Work out how far Mia ran last week.

[3 marks]

$$x \times 1.35 = 56.7$$

 $x = \frac{56.7}{1.35}$

$$\chi = \frac{56.7}{1.35}$$

Answer km

11 On Friday, a store sold 48 video games. This is 20% **fewer** than Thursday.

Work out how many video games were sold on Thursday.

[3 marks]

$$x \times 0.8 = 48$$

Answer

12 A mobile game had 69850 downloads this week. This is 27% more than the previous week.

> Work out how many downloads the game had the **previous week**. [3 marks]

$$x \times 1.27 = 69850$$

$$x = \frac{69850}{122}$$

55000 Answer



13 Emma buys a new book with 550 pages. She reads the book on Saturday and Sunday.

On Sunday she read 286 pages.

This is 30% more pages than she read on Saturday.

Work out how many pages of the book Emma will still have left to read. [4 marks]

$$xx1.3 = 286$$

$$x \times 1.3 = 286$$
 220 + 286 = 506

$$x = 286$$

Answer

14 Oberon and Europa are moons of Uranus and Jupiter. The mass of Europa is 60% more than Oberon.

The mass of Europa is 4.8×10^{22} kg

Work out the mass of **Oberon** giving your answer in standard form.

[3 marks]

$$2 \times 1.6 = 4.8 \times 10^{22}$$

$$3 \times 1.6 = 4.8 \times 10^{22}$$

3 × 1022 Answer kg

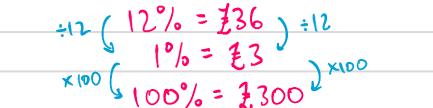
16



15 Rich adds £36 to his savings account.

This increases the amount of money Rich's savings by 12%

Work out how much money was in Rich's savings account originally. [2 marks]



Answer £ 300

16 A jar contains some sweets.

Poppy eats 39 of the sweets in the jar.

This reduces the number of sweets in the jar by 25%

75%

Work out how many sweets are now in the jar.

[2 marks]

$$\times 3 (25\% = 39 \text{ sweets}) \times 3$$

 $75\% = 117 \text{ sweets}$

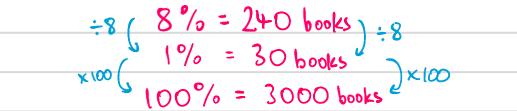
Answer | | | | | |

17 A library gets 240 new books.

This increases the number of books in the library by 8%.

Work out how many books were in the library originally.

[2 marks]



Answer 3000





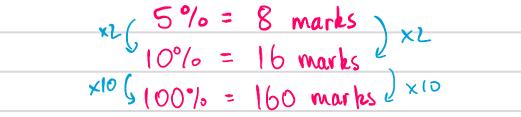




18	The pass mark for an exam decreases by 8 marks between 2024 and 2025
	These 8 marks represent a 5% decrease in the pass mark.

18 (a) Work out the pass mark for the exam in 2024.

[2 marks]



Answer 6

18 (b) Work out the pass mark for the exam in 2025.

[1 mark]



nswer 68

19 A bag contains counters that are either red, blue or green.

48 of the counters are red.

40% of the counters are red.

There are the same number of blue counters as green counters.

Work out the number of blue counters in the bag.

[4 marks]

$$\pm 4 (40\% = 48 \text{ counters}) \pm 4$$

 $\times 10(100\% = 12 \text{ counters}) \times 10$
 $120 - 48 = 72$

Answer 56



Turn over ▶

<u>13</u>

20 George has 3 attempts at the long jump.

His second jump is 10% further than his first jump. His third jump is 20% further than his second jump.

His best jump was 7.26 m

Work out the mean of his three jumps.

[5 marks]

$$x \times 1.2 = 7.26$$

$$x = \frac{7.76}{1.2}$$

$$x = 6.05$$

$$y \times 1.1 = 6.05$$

$$5.5 + 6.05 + 7.26 = 18.81$$

 $18.81 \div 3 = 6.27$

Answer 6 · 27

