

Reverse Percentages



REVISE THIS **TOPIC**

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

Work out the profit last year.

$$x \times 1.12 = 246400$$

$$x = 246400$$

$$1.12$$

(Total for Question 1 is 2 marks)

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

Work out the original price of the laptop.

$$x \times 0.85 = 816$$

 $x = 816$
 0.85

(Total for Question 2 is 2 marks)

The value of a car is now £12.240. 3 This is a 32% reduction from its original value.

Work out the original value of the car.

$$x \times 0.68 = 12240$$

$$x = 12240$$

$$0.68$$

(Total for Question 3 is 2 marks)



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.

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

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

432,000

(Total for Question 4 is 2 marks)

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

Work out how many followers Josh has on social media.

$$x \times 0.9 = 396$$

$$x = \frac{396}{0.9}$$

440

(Total for Question 5 is 2 marks)

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

Work out how many toys the factory produced on Tuesday.

$$x \times 0.85 = 1054$$

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



1240

(Total for Question 6 is 2 marks)

7 35% of a number is 42

Work out the number.

$$\div 7$$
 (35% = 42) $\div 7$
 $\times 2$ (5% = 6) $\times 2$
 $\times 10$ (10% = 12) $\times 10$

120

(Total for Question 7 is 2 marks)

8 11% of a number is 27.5

Work out the number.

$$\frac{100}{100} = \frac{11}{100} = \frac{$$

250

(Total for Question 8 is 2 marks)

9 30% of a number is 55.5

Work out 140% of the number.



259

(Total for Question 9 is 2 marks)

10 Mia ran 56.7 km this week.

This is 35% more than last week.

Work out how far Mia ran last week.

$$x \times 1.35 = 56.7$$

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

(Total for Question 10 is 2 marks)

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**.

$$x \times 0.8 = 48$$

$$x = \frac{48}{0.8}$$

$$x = \frac{480}{8}$$

(Total for Question 11 is 2 marks)

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.

$$x \times 1.27 = 69850$$

 $x = 69850$
 1.27



(Total for Question 12 is 2 marks)

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.

$$x \times 1.3 = 286$$

$$x = 286$$

$$1.3$$

(Total for Question 13 is 4 marks)

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.

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

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

$$1.6$$





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.

$$\pm 12 \left(\frac{12\%}{10\%} = \frac{136}{12} \right) \pm 12$$
 $\times 100 \left(\frac{10\%}{100\%} = \frac{1300}{1200} \right) \times 100$

300

(Total for Question 15 is 2 marks)

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%



Work out how many sweets are now in the jar.



$$\times 3$$
 (25% = 39 sweets) $\times 3$ 75% = 117 sweets

117

(Total for Question 16 is 2 marks)

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.

$$\div 8$$
 (8 % = 240 books) $\div 8$
 $\times 100$ (100% = 30 books) $\times 100$



3000

(Total for Question 17 is 2 marks)



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.



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

$$\times 10^{\circ}/0 = 8 \text{ marks}$$
 $\times 10^{\circ}/0 = 16 \text{ marks}$ $\times 10^{\circ}/0 = 160 \text{ marks}$ $\times 10^{\circ}/0 = 160 \text{ marks}$

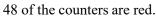
160

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

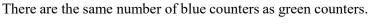
168

(Total for Question 18 is 3 marks)

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



40% of the counters are red.





Work out the number of blue counters in the bag.

$$\div4640\% = 48$$
 counters $)\div4$
 $\times106100\% = 12$ counters $)\times10$

$$120 - 48 = 72$$

 $72 \div 2 = 36$



(Total for Question 19 is 4 marks)



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.

$$x = \frac{7.26}{1.2}$$

$$x = \frac{6.05}{1.1}$$

$$y = \frac{6.05}{1.1}$$

$$y = \frac{6.05}{1.1}$$

$$y = \frac{6.05}{1.1}$$

$$18.81 \div 3 = 6.27$$



6.27

m

(Total for Question 20 is 5 marks)