Percentage Change

SCAN ME

REVISE THIS TOPIC

1 Work out the percentage increase from 60 to 75

$75 - 60 = 15$

$\frac{15}{60} \times 100 = 25$

25 %

(Total for Question 1 is 3 marks)

2 Work out the percentage increase from 500 to 560

$560 - 500 = 60$

$\frac{60}{500} \times 100 = 12$

12 %

(Total for Question 2 is 3 marks)

3 Work out the percentage increase from 200 to 500

$500 - 200 = 300$

$\frac{300}{200} \times 100 = 150$

150 %

(Total for Question 3 is 3 marks)

4 Work out the percentage decrease from 800 to 440

$800 - 440 = 360$

$\frac{360}{800} \times 100 = 45$

45 %

(Total for Question 4 is 3 marks)

5 Work out the percentage decrease from 275 to 187

$275 - 187 = 88$

$\frac{88}{275} \times 100 = 32$

32 %

(Total for Question 5 is 3 marks)

6 Work out the percentage decrease from 63 to 60

$63 - 60 = 3$

$\frac{3}{63} \times 100 = 4.76...$

4.76 %

(Total for Question 6 is 3 marks)

7 A puppy weighs 4.5 kg
A week later the puppy weighs 5.4 kg

Work out the percentage increase in the weight of the puppy.

$5.4 - 4.5 = 0.9$

$\frac{0.9}{4.5} \times 100 = 20$

20 %

(Total for Question 7 is 3 marks)

8 On Friday, the number of visitors to a shop is 120
On Saturday, the number of visitors to the same shop is 105

Work out the percentage decrease in the number of visitors to the shop.

$120 - 105 = 15$

$\frac{15}{120} \times 100 = 12.5$

12.5 %

(Total for Question 8 is 3 marks)

9 The normal price of a phone is £350
The phone is in a sale for x% off the normal price.

In the sale, the phone costs £280
Work out the value of x.

$350 - 280 = 70$

$\frac{70}{350} \times 100 = 20$

$x =$ 20

(Total for Question 9 is 3 marks)

10 In 2024 a YouTuber had 60,000 subscribers.
In 2025 the same YouTuber had 168,000 subscribers.

Calculate the percentage increase in subscribers from 2024 to 2025.

168000 - 60000 = 108000

$\frac{108000}{60000} \times 100 = 180$

180 ..... %

(Total for Question 10 is 3 marks)

11 The population of a town in 2022, 2023 and 2024 is shown below.

Year	2022	2023	2024
Population	31200	36504	27378

(a) Work out the percentage increase in population from 2022 to 2023

36504 - 31200 = 5304

$\frac{5304}{31200} \times 100 = 17$

17 ..... %

(3)

(b) Work out the percentage decrease in population from 2023 to 2024

36504 - 27378 = 9126

$\frac{9126}{36504} \times 100 = 25$

25 ..... %

(3)

(Total for Question 11 is 6 marks)

12 Liam buys a concert ticket for £40
He cannot attend so he sells it to his friend for £30

Work out Liam's percentage loss on the concert ticket.

$40 - 30 = 10$

$\frac{10}{40} \times 100$

25 %

(Total for Question 12 is 3 marks)

13 Chloe buys a coat for £18.
She sells it for £26

Work out Chloe's percentage profit.

$26 - 18 = 8$

$\frac{8}{18} \times 100 = 44.4...$

44.4 %

(Total for Question 13 is 3 marks)

14 155 people are in a queue for a ride at a theme park.
20 people get on the ride from the queue.

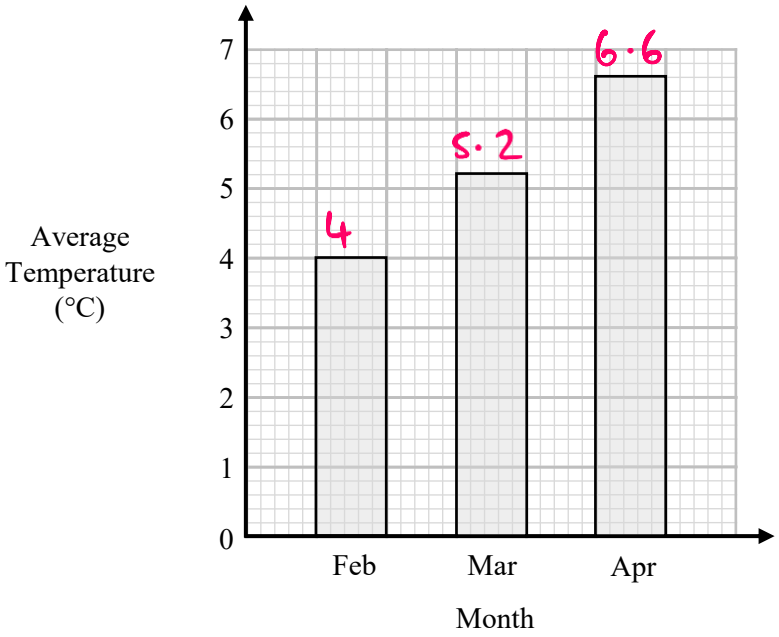
Work out the percentage decrease in the size of the queue.

$\frac{20}{155} \times 100 = 12.9...$

12.9 %

(Total for Question 14 is 3 marks)

15 The bar chart below shows information about the average temperature in the months February, March and April.



Aaron says:

"The percentage increase from March to April is greater than the percentage increase from February to March"

Show that Aaron is incorrect.

M → A $6.6 - 5.2 = 1.4$

$\frac{1.4}{5.2} \times 100 = 26.9\ldots\%$

F → M $5.2 - 4 = 1.2$

$\frac{1.2}{4} \times 100 = 30\%$

$26.9\ldots < 30$

(Total for Question 15 is 4 marks)

16 Aisha buys a bag of 50 sweets for £8
She sells each sweet individually for 20p

Calculate the percentage profit.

Cost = £8 Sales = 50 × 0·2 = £10
Profit = 10 − 8 = £2

$\frac{2}{8} \times 100 = 25$

25 %

(Total for Question 16 is 3 marks)

17 Omar runs a football club.

Each training session he pays

£60 to hire a football pitch
£15 for lighting

He charges £4.50 to each player to attend training.

On training session, 26 players attend.
Work out Omar's percentage profit for that training session.

Costs = 60 + 15 = £75
sales = 26 × 4·50 = £117
profit = 117 − 75 = 42

$\frac{42}{75} \times 100 = 56$

56 %

(Total for Question 17 is 4 marks)

18 Sofia buys a car for £2,500
She spends £320 improving the car ready to sell it.
She sells the car for £3500

Work out Sofia's percentage profit.

Costs = 2500 + 320 = £2820
Profit = 3500 − 2820 = £680

$\frac{680}{2820} \times 100 = 24.1\ldots$

24.1 ..... %

(Total for Question 18 is 4 marks)

19 Maria buys a house for £240,000
She spends £25,000 improving the house.

She sells the house a year later for £245,000

Work our Maria's percentage loss.

Costs = 240000 + 25000 = £265000
Loss = 265000 − 245000 = £20000

$\frac{20000}{265000} \times 100 = 7.5\ldots$

7.5 ..... %

(Total for Question 19 is 4 marks)

20 The cost per unit of electricity and gas for March and April are shown below.

Energy Type	Electricity	Gas
Cost per unit (March)	28.8 p	5.6 p
Cost per unit (April)	29.3 p	5.9 p

Buzz's energy usage for March and April is shown below.

Energy Type	Electricity	Gas
Energy Usage (March)	256	112
Energy Usage (April)	254	142

Work out the percentage increase in Buzz's energy costs between March and April.

March $28.8 \times 256 = 7372.8$ p

$5.6 \times 112 = 627.2$ p

$7372.8 + 627.2 = 8000$ p (£80)

April $29.3 \times 254 = 7442.2$ p

$5.9 \times 142 = 837.8$ p

$7442.2 + 837.8 = 8280$ p (£82.80)

$82.80 - 80.00 = £2.80$

$\frac{2.80}{80} \times 100 = 3.5$

3.5

3.5 ..... %

(Total for Question 20 is 5 marks)

21 200 red counters and 250 green counters are in a jar.

34% of the red counters are removed from the jar.
16% of the green counters are removed from the jar.

Work out the percentage decrease in the total number of counters in the jar.

200 x 0·66 = 132
250 x 0·84 = 210
132 + 210 = 342
200 + 250 = 450
450 - 342 = 108
$\frac{108}{450}$ x 100 = 24

24 ..... %

(Total for Question 21 is 5 marks)

22 Steve and Jan both throw the javelin.

Jan's throw is 25% **more** than Steve's throw.
Steve's throw is x% **less** than Jan's throw.

Work out the value of x.

Imagine Steve throws 100m
Jan throws 100 x 1·25 = 125m
125 - 100 = 25
$\frac{25}{125}$ x 100 = 20

x = 20 .....

(Total for Question 22 is 3 marks)

Solutions