

Percentage Change - Worksheet

Skill

Group A - Calculator

Find the percentage increase/decrease:

- | | |
|--------------------------------|--------------------------------|
| 1) £420 increased to £525 | 2) £420 increased to £567 |
| 3) £420 decreased to £273 | 4) £350 increased to £525 |
| 5) £350 increased to £567 | 6) £350 decreased to £273 |
| 7) £525 decreased to £420 | 8) £525 decreased to £350 |
| 9) £273 increased to £420 | 10) £654 increased to £1294.92 |
| 11) £654 increased to £1720.02 | 12) £654 decreased to £650.73 |

Group B - Non-calculator

Find the percentage increase/decrease without a calculator:

- | | |
|-----------------------------|-----------------------------|
| 1) 40 increased to 60 | 2) 1200 decreased to 600 |
| 3) 450kg increased to 495kg | 4) 370kg decreased to 333kg |
| 5) 500m increased to 600m | 6) 800cm decreased to 560cm |
| 7) 160 increased to 200 | 8) £88 decreased to £22 |
| 9) 80g increased to 116g | 10) 300l decreased to 105l |
| 11) 96ml increased to 128ml | 12) £123 decreased to £41 |
-

Percentage Change - Worksheet

Group C - Multiple percentage changes

Find the total percentage increase/decrease:

- | | |
|--|--|
| 1) £200 increased by 10%
and then by a further 10% | 2) £200 decreased by 10%
and then by a further 10% |
| 3) £200 increased by 20%
then decreased by 20% | 4) £200 decreased by 20%
then increased by 20% |
| 5) £50 increased by 25%
then by a further 10% | 6) £50 increased by 10%
then by a further 25% |
| 7) £300 decreased by 25%
then by a further 10% | 8) £300 decreased by 10%
then by a further 25% |
| 9) £40 increased by 50%
then by a further 50% | 10) £40 decreased by 50%
then by a further 50% |
| 11) £40 increased by 50%
then decreased by 50% | 12) £60 increased by 50%
then decreased by 50% |

Percentage Change - Worksheet

Applied

You may use a calculator for questions 3 and 4:

- 1)** Kelly bought a phone for £450. 18 months later she sold the phone for £180. Calculate Kelly's percentage loss.

- 2)** The weight of a puppy increased from 2 kg to 2.8 kg . Find the percentage increase in the puppy's weight.

- 3)**
 - (a)** In a sale, the price of a pair of boots was reduced from £40 to £32. Calculate the percentage reduction.

 - (b)** In the final week of the sale, all sale prices were reduced by 25%. Calculate the total percentage reduction in price of the boots.

- 4)**
 - (a)** The average number of customers each week in Lily's shop increased from 500 in 2018 to 560 in 2019. Calculate the percentage increase.

 - (b)** In 2020, the number of customers per week was 20% higher than in 2019. Calculate the total percentage increase in the number of customers over the 2 years,

Percentage Change - Exam Questions

You may use a calculator.

- 1) (a) Last year Ellie's council tax bill was £1752. This year it has increased to £1813.32. Calculate the percentage increase.

.....
(3)

- (b) Ellie pays her council tax monthly. She pays the same amount each month. Calculate the increase in Ellie's monthly payments.

.....
(2)
(5 marks)

-
- 2) (a) Louis invested £3200 in a bank account. At the end of the year, interest was added and his new balance was £3296. Calculate the interest rate used by the bank.

.....
(3)

- (b) Louis did not make any deposits or withdrawals during the second year. How much interest was paid to Louis at the end of the second year?

.....
(2)
(5 marks)

-
- 3) Karina owns a shop. She buys 400 tins of baked beans for £200. Karina sells packs of 4 tins of baked beans for £3.20. Calculate Karina's percentage profit.

.....
(4 marks)

Percentage Change - Exam Questions

- 4) (a) In 1900 the population of a city was 185000. By 1950, it had increased to 207200. Find the percentage increase.

.....
(2)

- (b) Between 1950 and 2000 the population increased by a further 5%. Find the total percentage increase in the city's population between 1900 and 2000.

.....
(4)
(7 marks)

Percentage Change - Answers

	Question	Answer
Group A	Skill questions	
	<p>With a calculator</p> <p>Find the percentage increase/decrease:</p> <p>1) £420 increased to £525</p> <p>2) £420 increased to £567</p> <p>3) £420 decreased to £273</p> <p>4) £350 increased to £525</p> <p>5) £350 increased to £567</p> <p>6) £350 decreased to £273</p> <p>7) £525 decreased to £420</p> <p>8) £525 decreased to £350</p> <p>9) £273 increased to £420</p> <p>10) £654 increased to £1294.92</p> <p>11) £654 increased to £1720.02</p> <p>12) £654 decreased to £650.73</p>	<p>1) 25%</p> <p>2) 35%</p> <p>3) 35%</p> <p>4) 50%</p> <p>5) 62%</p> <p>6) 22%</p> <p>7) 20%</p> <p>8) 33.3%</p> <p>9) 53.8%</p> <p>10) 98%</p> <p>11) 163%</p> <p>12) 0.5%</p>
Group B	<p>Without a calculator</p> <p>Find the percentage increase/decrease:</p> <p>1) 40 increased to 60</p> <p>2) 1200 decreased to 600</p> <p>3) 450kg increased to 495kg</p> <p>4) 370kg decreased to 333kg</p> <p>5) 500m increased to 600m</p> <p>6) 800cm decreased to 560cm</p> <p>7) 160 increased to 200</p> <p>8) £88 decreased to £22</p> <p>9) 80g increased to 116g</p> <p>10) 300l decreased to 105l</p> <p>11) 96ml increased to 128ml</p> <p>12) £123 decreased to £41</p>	<p>1) 50%</p> <p>2) 50%</p> <p>3) 10%</p> <p>4) 10%</p> <p>5) 20%</p> <p>6) 30%</p> <p>7) 25%</p> <p>8) 75%</p> <p>9) 45%</p> <p>10) 65%</p> <p>11) 33.3%</p> <p>12) 66.6%</p>

Percentage Change - Answers

Group C	<p>Find the total percentage increase/percentage decrease:</p> <p>1) £200 increased by 10% and then by a further 10%</p> <p>2) £200 decreased by 10% and then by a further 10%</p> <p>3) £200 increased by 20% then decreased by 20%</p> <p>4) £200 decreased by 20% then increased by 20%</p> <p>5) £50 increased by 25% then by a further 10%</p> <p>6) £50 increased by 10% then by a further 25%</p> <p>7) £300 decreased by 25% then by a further 10%</p> <p>8) £300 decreased by 10% then by a further 25%</p> <p>9) £40 increased by 50% then by a further 50%</p> <p>10) £40 decreased by 50% then by a further 50%</p> <p>11) £40 increased by 50% then decreased by 50%</p> <p>12) £60 increased by 50% then decreased by 50%</p>	<p>1) 21% increase</p> <p>2) 19% decrease</p> <p>3) 4% decrease</p> <p>4) 4% decrease</p> <p>5) 37.5% increase</p> <p>6) 37.5% increase</p> <p>7) 32.5% decrease</p> <p>8) 32.5% decrease</p> <p>9) 125% increase</p> <p>10) 75% decrease</p> <p>11) 25% decrease</p> <p>12) 25% decrease</p>
----------------	---	---

Percentage Change - Answers

You may use a calculator for questions 3 and 4.

	Question	Answer
	Applied Questions	
1)	Kelly bought a phone for £450. 18 months later she sold the phone for £180. Calculate Kelly's percentage loss.	60%
2)	The weight of a puppy increased from 2kg to 2.8kg. Find the percentage increase in the puppy's weight.	40%
3)	(a) In a sale, the price of a pair of boots was reduced from £40 to £32. Calculate the percentage reduction.	(a) 20%
	(b) In the final week of the sale, all sale prices were reduced by 25%. Calculate the total percentage reduction in price of the boots.	(b) 40%
4)	(a) The average number of customers each week in Lily's shop increased from 500 in 2018 to 560 in 2019. Calculate the percentage increase.	(a) 12%
	(b) In 2020, the number of customers per week was 20% higher than in 2019. Calculate the total percentage increase in the number of customers over the 2 years.	(b) 34.4%

Percentage Change - Mark Scheme

	Question	Answer	
	Exam Questions		
1) (a)	Last year Ellie's council tax bill was £1752. This year it has increased to £1813.32. Calculate the percentage increase.	(a) $£1813.32 - £1752 = £61.32$ $\frac{61.32}{1752} \times 100$ 3.5%	(1) (1) (1)
(b)	Ellie pays her council tax monthly. She pays the same amount each month. Calculate the increase in Ellie's monthly payments.	(b) $(1813.32 - 1750) \div 12$ £5.11	(1) (1)
2) (a)	Louis invested £3200 in a bank account. At the end of the year, interest was added and his new balance was £3296. Calculate the interest rate used by the bank.	(a) Change: $£3296 - £3200 = £96$ $\frac{96}{3200} \times 100 = 3\%$	(1) (1)
(b)	Louis did not make any deposits or withdrawals during the second year. How much interest was paid to Louis at the end of the second year?	(b) 3296×0.03 oe £98.88	(1) (1)
3)	Karina owns a shop. She buys 400 tins of baked beans for £200. Karina sells packs of 4 tins of baked beans for £3.20. Calculate Karina's percentage profit.	$200 \div 400 = £0.50$ each $3.2 \div 4 = £0.80$ each $\frac{80-50}{50} \times 100$ 60%	(1) (1) (1) (1)
4) (a)	In 1900 the population of a city was 185000. By 1950, it had increased to 207200. Find the percentage increase.	(a) $\frac{207200-185000}{185000} \times 100$ 12% increase	(1) (1)
(b)	Between 1950 and 2000 the population increased by a further 5%. Find the total percentage increase in the city's population between 1900 and 2000.	(b) $\frac{207200}{100} \times 105 = 217560$ $217560 - 185000 = 32560$ $\frac{32560}{185000} \times 100$ 17.6%	(1) (1) (1) (1)

Do you have KS4 students who need additional support in maths?

Our specialist tutors will help them develop the skills they need to succeed at GCSE in weekly one to one online revision lessons. Trusted by secondary schools across the UK.

Visit thirdspacelearning.com to find out more.