

Percentage Increase & Decrease - Worksheet

Skill

Group A - Increase/decrease by a percentage

(Calculator allowed for questions 7-12)

- | | | |
|---------------------------|----------------------------|--------------------------|
| 1) Increase £80 by 20% | 2) Decrease £120 by 70% | 3) Increase 60cm by 45% |
| 4) Decrease 150cm by 65% | 5) Increase 54kg by 30% | 6) Decrease 420kg by 8% |
| 7) Increase 380ml by 62% | 8) Decrease 1570ml by 37% | 9) Increase 6g by 150% |
| 10) Decrease 42.3g by 47% | 11) Increase £482 by 17.5% | 12) Decrease £38 by 0.5% |
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Group B - Percentage increase/decrease using a multiplier

(Calculator allowed)

- | | | |
|---------------------------|----------------------------|---------------------------|
| 1) Increase 30km by 24% | 2) Decrease 64km by 52% | 3) Increase 850l by 60% |
| 4) Decrease 423l by 30% | 5) Increase £38.50 by 4% | 6) Decrease £78.42 by 7% |
| 7) Increase 49mg by 3.7% | 8) Decrease 540mg by 16.4% | 9) Increase 85m by 0.3% |
| 10) Decrease 930m by 0.8% | 11) Increase £625 by 120% | 12) Decrease £29 by 11.5% |

Percentage Increase & Decrease - Worksheet

Group C - Calculating percentage change

Calculate the percentage increase/decrease that has occurred
(Calculator allowed for questions 7-12)

- | | | |
|--------------------------------------|-------------------------------------|-------------------------------------|
| 1) £50 increased to £60 | 2) £20 decreased to £8 | 3) 60m increased to 84m |
| 4) 90m decreased to 63m | 5) 300g increased to 480g | 6) 250g decreased to 175g |
| 7) 720ml increased to 972ml | 8) 1800ml decreased to 810ml | 9) £64 increased to £71.68 |
| 10) £815 decreased to £293.40 | 11) 45l increased to 92.25l | 12) 560l decreased to 557.2l |

Percentage Increase & Decrease - Worksheet

Applied

- 1) (a)** The normal price of a television is £350. In a sale, the television is reduced by 20%.

Find the sale price of the television.

- (b)** In another sale later in the year, the television is reduced to £245.

By what percentage is the television reduced in this sale?

- 2) (a)** Kerry bought a car for £2400. She sold the car for £2700.

What was Kerry's percentage profit?

- (b)** Kerry must make at least 10% profit on each car she sells to ensure her business is successful.

What is the least value that Kerry could have sold the car for?

- 3) (a)** (Calc)

Nadim bought a house for £210000 in 2010. In 2015 the house value had increased by 15%.

Find the value of the house in 2015.

- (b)** (Calc)

By 2018 the value of the house had increased by a further £10,000.

Find the total percentage increase in the value of the house.

Percentage Increase & Decrease - Worksheet

4) (a) (Calc)

An adult ticket for a theme park costs £23.50 and a child ticket costs £18. Mr and Mrs Jones and their two children visit the theme park. Mrs Jones has a voucher for a 12% discount.

How much do the family pay for their tickets?

(b) The day that the Jones family visited the theme park there were a total of 5450 visitors. The following day there were 6104 visitors.

What is the percentage increase in visitors between the two days?

Percentage Increase & Decrease - Exam Questions

- 1) (a) Vicky earns £22,000 per annum. She decreases her hours by 20% and her salary is also reduced by 20%.

What is her new salary?

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

-
- 2) (a) In 2018 the average annual gas bill for UK households was £593. In 2019 this increased by 2.8%.

Find the average annual gas bill for UK households in 2019.

.....
(2)

- (b) The average annual electricity bill for UK households rose from £640 in 2018 to £679 in 2019.

Find the percentage increase.

.....
(2)
(4 marks)

-
- 3) (a) Fion wants to buy a new sofa. She can buy the sofa from one of two shops.

<i>Sofa Warehouse</i>	<i>The Furniture Store</i>
£1200 including VAT	£980 not including VAT

VAT is charged at 20%.

At which shop would Fion pay less for the sofa?

You must show your work.

.....
(3)
(3 marks)

Percentage Increase & Decrease - Exam Questions

- 4) (a) A shop bought 50 pairs of trainers for £575, retailing them at £21 per pair. The shop sold 40 pairs of trainers at full price. The rest were sold in a sale where they were 20% off.

Calculate the total profit made by the shop after all of the pairs of trainers were sold.

.....
(5)

- (b) What percentage profit did the shop make on the trainers?

Give your answer to 1.d.p.

.....
(1)
(6 marks)

Percentage Increase & Decrease - Answers

	Question	Answer
Group A	Skill questions	
	Increase or decrease each value by the given percentage 1) Increase £80 by 20% 2) Decrease £120 by 70% 3) Increase 60cm by 45% 4) Decrease 150cm by 65% 5) Increase 54kg by 30% 6) Decrease 420kg by 8% 7) Increase 380ml by 62% 8) Decrease 1570ml by 37% 9) Increase 6g by 150% 10) Decrease 42.3g by 47% 11) Increase £482 by 17.5% 12) Decrease £38 by 0.5%	1) £96 2) £36 3) 87cm 4) 52.5cm 5) 70.2kg 6) 386.4kg 7) 615.6ml 8) 989.1ml 9) 15g 10) 22.419g 11) £566.35 12) £37.81
Group B	Work out the following percentage increases/decreases using a multiplier 1) Increase 30km by 24% 2) Decrease 64km by 52% 3) Increase 850l by 60% 4) Decrease 423l by 30% 5) Increase £38.50 by 4% 6) Decrease £78.42 by 7% 7) Increase 49mg by 3.7% 8) Decrease 540mg by 16.4% 9) Increase 85m by 0.3% 10) Decrease 930m by 0.8% 11) Increase £625 by 120% 12) Decrease £29 by 11.5%	1) 37.2km 2) 30.72km 3) 1360l 4) 296.1l 5) £40.04 6) £72.93 7) 50.813mg 8) 451.44mg 9) 85.255m 10) 922.56m 11) £1375 12) £25.67

Percentage Increase & Decrease - Answers

Group C	Calculate the percentage increase/decrease that has occurred 1) £50 increased to £60 2) £20 decreased to £8 3) 60m increased to 84m 4) 90m decreased to 63m 5) 300g increased to 480g 6) 250g decreased to 175g 7) 720ml increased to 972ml 8) 1800ml decreased to 810ml 9) £64 increased to £71.68 10) £815 decreased to £293.40 11) 45l increased to 92.25l 12) 560l decreased to 557.2l	1) 20% 2) 60% 3) 40% 4) 30% 5) 60% 6) 30% 7) 35% 8) 55% 9) 12% 10) 64% 11) 105% 12) 0.5%
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Percentage Increase & Decrease - Answers

	Question	Answer
	Applied Questions	
1)	a) The normal price of a television is £350. In a sale, the television is reduced by 20%. Find the sale price of the television.	a) £280
	b) In another sale later in the year, the television is reduced to £245. By what percentage is the television reduced in this sale?	b) 30%
2)	a) Kerry bought a car for £2400. She sold the car for £2700. What was Kerry's percentage profit?	a) 12.5%
	b) Kerry must make at least 10% profit on each car she sells to ensure her business is successful. What is the least value that Kerry could have sold the car for?	b) £2640
3)	a) Nadim bought a house for £210000 in 2010. In 2015 the house value had increased by 15%. Find the value of the house in 2015.	a) £241,500
	b) By 2018 the value of the house had increased by a further £10,000. Find the total percentage increase in the value of the house.	b) 19.76%
4)	a) An adult ticket for a theme park costs £23.50 and a child ticket costs £18. Mr and Mrs Jones and their two children visit the theme park. Mrs Jones has a voucher for a 12% discount. How much do the family pay for their tickets?	a) £73.04
	b) The day that the Jones family visited the theme park there were a total of 5450 visitors. The following day there were 6104 visitors. What is the percentage increase in visitors between the two days?	b) 12%

Percentage Increase & Decrease - Mark Scheme

	Question	Answer					
	Exam Questions						
1)	Vicky earns £22, 000 per annum. She decreases her hours by 20% and her salary is also reduced by 20%. What is her new salary?	$20\% \text{ of } £22000 = £4400$ $£22000 - £4400 = £17600$	(1) (1)				
2) (a)	In 2018 the average annual gas bill for UK households was £593. In 2019 this increased by 2. 8%. Find the average annual gas bill for UK households in 2019.	(a) $2.8\% \text{ of } £593 = £16.60$ $£593 + £16.60 = £609.60$	(1) (1)				
(b)	The average annual electricity bill for UK households rose from £640 in 2018 to £679 in 2019. Find the percentage increase.	(b) $£679 - £640 = £39$ $\frac{£39}{£640} \times 100 = 6.09\%$	(1) (1)				
3)	Fion wants to buy a new sofa. She can buy the sofa from one of two shops. <table><tr><td><i>Sofa Warehouse</i></td><td><i>The Furniture Store</i></td></tr><tr><td>£1200 including VAT</td><td>£980 not including VAT</td></tr></table> VAT is charged at 20%. At which shop would Fion pay less for the sofa? You must show your work.	<i>Sofa Warehouse</i>	<i>The Furniture Store</i>	£1200 including VAT	£980 not including VAT	$20\% \text{ of } £980 = £196$ $£980 + £196 = £1176$ The furniture store	(1) (1) (1)
<i>Sofa Warehouse</i>	<i>The Furniture Store</i>						
£1200 including VAT	£980 not including VAT						

Percentage Increase & Decrease - Mark Scheme

4) (a)	A shop bought 50 pairs of trainers for £575, retailing them at £21 per pair. The shop sold 40 pairs of trainers at full price. The rest were sold in a sale where they were 20% off. Calculate the total profit made by the shop after all of the pairs of trainers were sold.	(a) $40 \times £21 = £840$ $20\% \text{ of } £21 = £4.20$ $£21 - £4.20 = £16.80$ $£16.80 \times 10 = £168$ $£840 + £168 = £1008$ $£1008 - £575 = £433$	(1) (1) (1) (1) (1) (1)
(b)	What percentage profit did the shop make on the trainers? Give your answer to 1dp.	(b) $\frac{£433}{£575} = 75.3\%$	(1)

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