

Reverse Percentages - Worksheet

Skill

Group A - Working backwards given a percentage (calculator)

Find the original amount given the following percentages:

- 1) 65% of the number is 273 2) 54% of the number is 4455 3) 6% of the number is 19.44
4) 98% of the number is 8526 5) 124% of the number is 71.92 6) 173% of the number is 1107.2
7) 102% of the number is 8629.2 8) 234% of the number is 1404 9) 12.5% of the number is 11
10) 2.9% of the number is 14.848 11) 0.4% of the number is 0.92 12) 124.5% of the number is 105.825
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Group B - Working backwards given a percentage (non-calculator)

Find the original amount given the following percentages:

- 1) 30% of the number is 27 2) 90% of the number is 540 3) 80% of the number is 44
4) 60% of the number is 330 5) 15% of the number is 63 6) 35% of the number is 420
7) 75% of the number is 36 8) 8% of the number is 36 9) 150% of the number is 3900
10) 110% of the number is 99 11) 175% of the number is 49 12) 320% of the number is 128
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Group C - Working backwards given percentage increase/decrease

Find the original amount given the following percentage increases/decreases:

You may use a calculator for questions 1-6.

- 1) 1054 after a 24% increase 2) 399 after a 58% decrease 3) 866.25 after a 12.5% increase
4) 2839 after a 33.2% decrease 5) 241.2 after a 0.5% increase 6) 2128.5 after a 136.5% increase
7) 96 after a 20% decrease 8) 42 after a 40% increase 9) 42 after a 60% decrease
10) 510 after a 25% decrease 11) 55 after a 150% increase 12) 3345 after an 85% decrease

Reverse Percentages - Worksheet

Applied

You may use a calculator for questions 2-4.

- 1)** 30% of the members of a running club are female. If there are 18 female members, how many members are there in total?

- 2) (a)** The population of Cardiff is 360 801. This is 11.5% of the total population of Wales.
Find the total population of Wales.

(b) The population of Wales has increased by 8% since the year 2000.
Calculate the population of Wales in the year 2000.

- 3) (a)** Sheila is a cleaner. She has increased her hourly rate by 6% to £12.72 per hour. How much did Sheila charge per hour before she increased her hourly rate?

(b) Sheila works for 25 hours per week. She works for 48 weeks per year. How much extra money will Sheila earn in one year?

- 4)** Gary buys some building material. The price, including VAT (at 20%) is £644.40. Calculate the price before VAT is added.

Reverse Percentages - Exam Questions

You may use a calculator for questions 1 and 2.

- 1) (a) In August, 16% of all ice creams sold in Ifan's Ice Cream Parlour were chocolate flavoured. If 1368 chocolate ice creams were sold, how many ice creams were sold altogether?

.....
(2)

- (b) In August, Ifan's Ice Cream Parlour sold 52% more ice creams than it did in July. How many were sold in July?

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

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- 2) (a) Jacob invested some money into a bank account with an interest rate of 2.4% per annum. After 1 year Jacob had £358.40 in his account. How much did Jacob invest?

.....
(3)

- (b) How much would Jacob have in his account at the end of the second year?

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

- 3) A chocolate breakfast cereal is made with a new recipe, containing 40% less sugar. If the breakfast cereal now contains 9g of sugar per serving, how much did it contain, per serving, before the recipe changed?

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

Reverse Percentages - Exam Questions

- 4) (a) A laptop is reduced by 25% to £390. Find the original price of the laptop.

.....
(3)

- (b) The sale price is then reduced by 25%. Ashley says that the laptop will now be half price. Is Ashley correct? Give a reason for your answer.

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

Reverse Percentages - Answers

	Question	Answer
Group A	Skill questions	
	Find the original amount when:	
	1) 65% of the number is 273	1) 420
	2) 54% of the number is 4455	2) 8250
	3) 6% of the number is 19.44	3) 324
	4) 98% of the number is 8526	4) 8700
	5) 124% of the number is 71.92	5) 58
	6) 173% of the number is 1107.2	6) 640
	7) 102% of the number is 8629.2	7) 8460
	8) 234% of the number is 1404	8) 600
	9) 12.5% of the number is 11	9) 88
	10) 2.9% of the number is 14.848	10) 512
	11) 0.4% of the number is 0.92	11) 230
	12) 124.5% of the number is 105.825	12) 85
Group B	Find the original amount when:	
	1) 30% of the number is 27	1) 90
	2) 90% of the number is 540	2) 600
	3) 80% of the number is 44	3) 55
	4) 60% of the number is 330	4) 550
	5) 15% of the number is 63	5) 420
	6) 35% of the number is 420	6) 1200
	7) 75% of the number is 36	7) 48
	8) 8% of the number is 36	8) 450
	9) 150% of the number is 3900	9) 2600
	10) 110% of the number is 99	10) 90
	11) 175% of the number is 49	11) 28
	12) 320% of the number is 128	12) 40

Reverse Percentages - Answers

Group C	Find the original amount when: 1) 1054 after a 24% increase 2) 399 after a 58% decrease 3) 866.25 after a 12.5% increase 4) 2839 after a 33.2% decrease 5) 241.2 after a 0.5% increase 6) 2128.5 after a 136.5% increase 7) 96 after a 20% decrease 8) 42 after a 40% increase 9) 42 after a 60% decrease 10) 510 after a 25% decrease 11) 55 after a 150% increase 12) 3345 after an 85% decrease	1) 850 2) 950 3) 770 4) 4250 5) 240 6) 900 7) 120 8) 30 9) 105 10) 680 11) 22 12) 22300
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Reverse Percentages - Answers

	Question	Answer
	Applied Questions	
1)	30% of the members of a running club are female. If there are 18 female members, how many members are there in total?	60
2)	a) The population of Cardiff is 360801. This is 11.5% of the total population of Wales. Find the total population of Wales. b) The population of Wales has increased by 8% since the year 2000. Calculate the population of Wales in the year 2000.	a) 3137400 b) 2905000
3)	a) Sheila is a cleaner. She has increased her hourly rate by 6% to £12.72 per hour. How much did Sheila charge per hour before she increased her hourly rate? b) Sheila works for 25 hours per week. She works for 48 weeks per year. How much extra money will Sheila earn in one year?	a) £12/hour b) £864
4)	Gary buys some building material. The price, including VAT (at 20%) is £644.40. Calculate the price before VAT is added.	£537

Reverse Percentages - Mark Scheme

	Question	Answer	
	Exam Questions		
1) (a)	In August, 16% of all ice creams sold in Ifan's Ice Cream Parlour were chocolate flavoured. If 1368 chocolate ice creams were sold, how many ice creams were sold altogether?	(a) $16\% = 1368$ $1\% = 85.5$ $100\% = 8550$ ice creams	(1) (1)
(b)	In August, Ifan's Ice Cream Parlour sold 52% more ice creams than it did in July. How many were sold in July?	(b) $152\% = 8550$ $1\% = 56.25$ $100\% = 5625$ ice creams	(1) (1) (1)
2) (a)	Jacob invested some money into a bank account with an interest rate of 2.4% per annum. After 1 year Jacob had £358.40 in his account. How much did Jacob invest?	(a) $102.4\% = £358.40$ $1\% = 3.5$ $100\% = £350$	(1) (1) (1)
(b)	How much would Jacob have in his account at the end of the second year?	(b) $100\% = £358.40$ $1\% = 3.584$ $102.4\% = £367$	(1) (1) (1)
3)	A chocolate breakfast cereal is made with a new recipe, containing 40% less sugar. If the breakfast cereal now contains 9g of sugar per serving, how much did it contain, per serving, before the recipe changed?	$60\% = 9g$ $10\% = 1.5g$ or $1\% = 0.15g$ $100\% = 15g$	(1) (1) (1)
4) (a)	A laptop is reduced by 25% to £390. Find the original price of the laptop.	(a) $75\% = £390$ $25\% = £130$ or $1\% = £5.20$ $100\% = £520$	(1) (1) (1)
(b)	The sale price is then reduced by 25%. Ashley says that the laptop will now be half price. Is Ashley correct? Give a reason for your answer.	(b) No 25% of £390 is less than 25% of £520 so the overall reduction will be less than 50%.	(1) (1)

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