Reverse Percentages

ANSWERS

1

After a 20% increase, a price is £84. Work out the original price.

£70 —(× 1.2)→ £84 (New)
£84 —(÷ 1.2)→ £70 (Original)

Multiplier: 100% + 20% = 120% = 1.2

Original: £84 ÷ 1.2 = £70

Answer £70

2

After a 10% decrease, a price is £153. Work out the original price.

£170 —(× 0.9)→ £153 (New)
£153 —(÷ 0.9)→ £170 (Original)

Multiplier: 100% − 10% = 90% = 0.9

Original: £153 ÷ 0.9 = £170

Answer £170

3

In a sale, a sofa is reduced by 35%. It now costs £520. Work out the price before the sale.

£800 —(× 0.65)→ £520 (New)
£520 —(÷ 0.65)→ £800 (Original)

Multiplier: 100% − 35% = 65% = 0.65

Original: £520 ÷ 0.65 = £800

Answer £800

4

A rent goes up by 6% to £901 a month. Work out the rent before it went up.

£850 —(× 1.06)→ £901 (New)
£901 —(÷ 1.06)→ £850 (Original)

Multiplier: 100% + 6% = 106% = 1.06

Original: £901 ÷ 1.06

Answer £850

5

After a 25% increase, a bus fare is £3.75. Use 1% to work out the fare before the increase.

£3.75 = 125%

1% = £3.75 ÷ 125 = £0.03

100% = £0.03 × 100

Answer £3.00

6

A TV costs £340 after 15% off. Tom says 15% of £340 is £51, so the price before was £340 + £51 = £391. Explain his mistake, then work out the right price.

the 15% was of the original, not of £340

100% − 15% = 85% = 0.85

£340 ÷ 0.85

Answer £400

7

A kettle costs £58.80 including VAT at 20%. Work out the price before VAT.

100% + 20% = 120% = 1.2

£58.80 ÷ 1.2

Answer £49.00

8

The value of a flat went up by 12% in a year. It is now worth £238 000. What was it worth a year ago?

100% + 12% = 112% = 1.12

£238 000 ÷ 1.12

Answer £212 500

Reverse Percentages *further practice*

ANSWERS

9

After a 2.5% increase, a price is £1291.50. Work out the original price.

100% + 2.5% = 102.5% = 1.025

£1291.50 ÷ 1.025

Answer £1260

10

Find the original amount.
a) £90 after a 50% increase
b) £45 after a 25% decrease
c) £132 after a 10% increase
d) £19.50 after a 35% decrease

a) £90 ÷ 1.5 = £60

b) £45 ÷ 0.75 = £60

c) £132 ÷ 1.1 = £120

d) £19.50 ÷ 0.65 = £30.00

11

A school has 989 students. That is 15% more than last year. How many students did it have last year?

100% + 15% = 115% = 1.15

989 ÷ 1.15

Answer 860

12

In a sale, a coat is reduced by 30% to £71.40. How much money is saved?

£71.40 ÷ 0.7 = £102.00

£102.00 – £71.40

Answer £30.60

13

Shop A sells a jacket for £68 after 15% off. Shop B sells it for £76.50 after 10% off. Which shop had the higher price before the sale, and by how much?

A: £68 ÷ 0.85 = £80

B: £76.50 ÷ 0.9 = £85

Answer Shop B, by £5

14

A gym raises its monthly price by 8%. The price goes up by £3.60. What is the new monthly price?

8% = £3.60, so 1% = £0.45

100% = £45

£45 + £3.60

Answer £48.60

15

A shop puts up the price of a lamp by 25%. Later, in a sale, it takes 10% off the new price. The sale price is £81. What was the price at the start?

£81 ÷ 0.9 = £90

£90 ÷ 1.25

Answer £72

16

A price falls by 20% to £48. Ella says the price before was £48 × 1.2 = £57.60. Is Ella right? Explain.

No: 20% of the original came off

£48 ÷ 0.8 = £60

Answer No, it was £60