

ADVANCED USE OF PERCENTAGESEXERCISE

1. Increase 48 kg by 13%
2. Decrease £67 by 14%
3. Increase £89 by 89%
4. Decrease 720 m by 32%
5. Increase 82 kg by 110%
6. Decrease 99 m by 3%
7. Increase £240 by 11%
8. Decrease 315 kg by 40%
9. Increase 29 m by 44%
10. Decrease £33 by 23%
11. A workforce is reduced by 5% to 437. What was the previous size of the workforce?
12. Including 20% VAT a television costs £420. What is the ex-VAT price?
13. 442 soldiers completed their training course. If 15% dropped out, how many began the course?
14. A coat is priced at £42 in a sale with 25% off. What was the price of the coat before the sale?
15. After a 15% price rise a cycle cost £184. What was the price before the price rise?

## ADVANCED USE OF PERCENTAGES

## EXERCISE

1. Increase 48 kg by 13%

$$100\% + 13\% = 113\%$$

Find 113% of 48 kg

$$48 \text{ kg} \times 1.13 = 54.24 \text{ kg}$$

$$82 \text{ kg} \times 2.10 = 172.2 \text{ kg}$$

6. Decrease 99 m by 3%

$$100\% - 3\% = 97\%$$

Find 97% of 99 m

$$99 \text{ m} \times 0.97 = 96.03 \text{ m}$$

2. Decrease £67 by 14%

$$100\% - 14\% = 86\%$$

Find 86% of £67

$$£67 \times 0.86 = £57.62$$

7. Increase £240 by 11%

$$100\% + 11\% = 111\%$$

Find 111% of £240

$$£240 \times 1.11 = £266.40$$

3. Increase £89 by 89%

$$100\% + 89\% = 189\%$$

Find 189% of £89

$$£89 \times 1.89 = £168.21$$

8. Decrease 315 kg by 40%

$$100\% - 40\% = 60\%$$

Find 60% of 315 kg

$$315 \text{ kg} \times 0.60 = 189 \text{ kg}$$

4. Decrease 720 m by 32%

$$100\% - 32\% = 68\%$$

Find 68% of 720 m

$$720 \text{ m} \times 0.68 = 489.6 \text{ m}$$

9. Increase 29 m by 44%

$$100\% + 44\% = 144\%$$

Find 144% of 29 m

$$29 \text{ m} \times 1.44 = 41.76 \text{ m}$$

5. Increase 82 kg by 110%

$$100\% + 110\% = 210\%$$

Find 210% of 82 kg

## ADVANCED USE OF PERCENTAGES

## EXERCISE

10. Decrease £33 by 23%  
 $100\% - 23\% = 77\%$   
 Find 77% of £33  
 $£33 \times 0.77 = £25.41$

11. Workforce reduced by 5% to 437  
 $\text{Original} \times 0.95 = 437$   
 so  $437 \div 0.95 = \text{original}$   
 $437 \div 0.95 = 460$   
 Original workforce = 460

12. Ex-VAT price + 20% = £420  
 $\text{Ex-VAT price} \times 1.20 = £420$   
 so  $£420 \div 1.20 = \text{Ex-VAT Price}$   
 $£420 \div 1.20 = £350$   
 Ex-VAT price = £350

13. Original - 15% = 442  
 $\text{Original} \times 0.85 = 442$   
 so  $442 \div 0.85 = \text{original}$   
 $442 \div 0.85 = 520$   
 520 soldiers started course

14. Original - 25% = £42  
 $\text{Original} \times 0.75 = £42$   
 so  $£42 \div 0.75 = \text{original}$   
 $£42 \div 0.75 = £56$   
 Coat was originally £56

15. Original + 15% = £184  
 $\text{Original} \times 1.15 = £184$   
 so  $£184 \div 1.15 = £160$   
 Cycle was originally £160  
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