Word Problems

GCSE Worksheet

Grade 3-4 questions

1 **Sarah buys 12 candles for £2.40 each. She sells 10 of them for £4.20 each, but 2 are damaged and unsold. What is her total profit?**

Cost price (CP) of 12 candles:
12 × £2.40 = £28.80
Revenue from selling 10 candles at £4.20 each:
10 × £4.20 = £42.00
Profit = Revenue - Total Cost:
£42.00 − £28.80 = £13.20

✅ £13.20 profit
..... (2)

2 **Jake drives 120 km at 60 km/h. He returns the same distance at 40 km/h. What is his average speed for the whole journey?**

Time to go (120 km at 60 km/h):
120 ÷ 60 = 2 hours
Time to return (120 km at 40 km/h):
120 ÷ 60 = 3 hours
Total distance:
120 + 120 = 240 km
Total time:
2 hours + 3 hours = 5 hours
Average speed:
240 ÷ 5 = 48 km/h

✅ 48 km/h
..... (3)

3 **Machine A prints 150 pages in 10 minutes. Machine B prints 180 pages in 6 minutes. How long will it take them to print 1350 pages together, working at the same time?**

Rate of Machine A:
150 ÷ 10 = 15 pages per min
Rate of Machine B:
180 ÷ 6 = 30 pages per min
Combined rate:
15 + 30 = 45 pages per min
Time to print 900 pages at 30 pages per min:
1350 ÷ 30 = 30 minutes

✅ 30 minutes
..... (3)

4 **The mean of five numbers is 64. Four of the numbers are 59, 62, 67, and 70. What is the fifth number?**

Total of five numbers:
$5 \times 64 = 320$
Sum of four known numbers:
$59 + 62 + 67 + 70 = 258$
Fifth number:
$320 - 258 = 62$

✅ 62 ..... (2)

5 **Ella buys 80 keychains for £2.50 each. She sells 70 of them at £3.20 each, but the rest are damaged and thrown away. What is her percentage profit or loss?**

Total cost:
$80 \times £2.50 = £200$
Revenue from sales:
$70 \times £3.20 = £224$
Profit:
$£224 - £200 = £24$
% Profit:
$\frac{24}{200} \times 100 = 12\%$

✅ 12% profit ..... (3)

6 **It takes 4 painters 6 days to paint a house. How many days would it take 3 painters to paint the same house, working at the same rate?**

Total painter-days needed:
$4 \times 6 = 24$ painter-days
Divide by 3 painters:
$24 \div 3 = 8$ days

✅ 8 days ..... (3)

Grade 5 questions

1 **Ahmed is paid £12 per hour. He works 37.5 hours a week. He pays 20% tax on earnings above £200. How much does he take home each week after tax?**

Gross earnings:
37.5 × 12 = £450.00
Taxable amount above £200:
450 - 200 = £250
Tax = 20% of £250:
250 × 0.20 = £50
Take-home pay = Gross - Tax:
450 - 50 = £400

✅ £400 take-home pay
..... (2)

2 **The mean of six numbers is 45. One of the numbers is 72. What is the mean of the other five numbers? Round your answer to the nearest whole number.**

Total of six numbers:
6 × 45 = 270
Subtract the outlier (72):
270 - 72 = 198
Mean of remaining five numbers:
198 ÷ 5 = 39.6

✅ **40**
..... (3)

3 **A laptop is reduced by 15% in a sale. The sale price is £595. What was the original price?**

Let the original price be x:
$x - 0.15x = 595$
$0.85x = 595$
$x = 595 \div 0.85 = 700$

✅ **£700**
..... (3)

Grade 5 questions

4 **A ladder is leaning against a wall. The foot of the ladder is 2.5 m from the wall, and the ladder is 4 m long. How high up the wall does the ladder reach?**

Use Pythagoras' theorem:

$$a^2 + b^2 = c^2$$

Where:
c = 4 m (hypotenuse)
a = 2.5 m (base)
b = ? m (height

$$2.5^2 + b^2 = 4^2 \rightarrow b^2 = 9.75 \rightarrow b = 3.12m$$

✅ **3.12m** ..... (2)

5 **A student scores 68, 72, and 84 in three tests. The third test counts for twice as much as each of the other two. What is the mean score?**

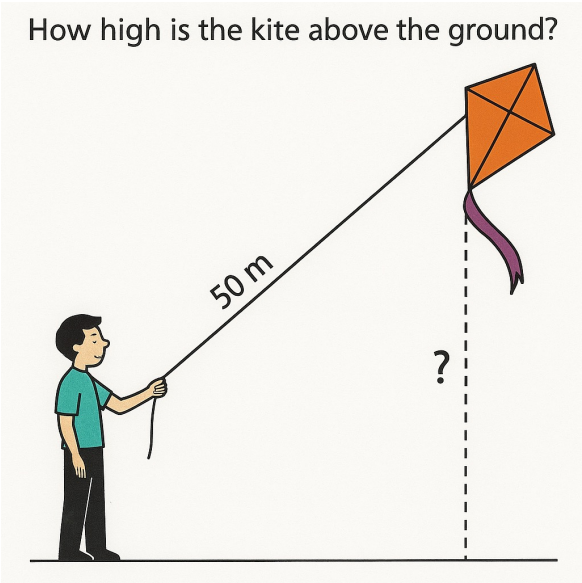
Mean = $\frac{68+72+84+84}{4} = 77$

✅ **77** ..... (3)

6 **A man is holding a kite. His hand is 1.2 metres above the ground. The kit string is 50 metres long. The angle between the horizontal and the kite string is 37 degrees.**

How high is the kite?

$$1.2 + 50\ sin(37) = 31.3\ m$$



✅ **31.3m** ..... (3)