

Finding 15% of 60 using cross-cancelling (scaffolded)

Step 1: Change the percentage to a fraction

15% means **15 out of 100**.

$$15\% = \frac{15}{100}$$

So the problem becomes:

$$\frac{15}{100} \times 60$$

Step 2: Write the whole number as a fraction

$$\frac{15}{100} \times \frac{60}{1}$$

Step 3: Simplify by cross-cancel before multiplying

Look for numbers on the **top and bottom** that share a common factor.

(Find a common factor in a denominator and numerator)

- 60 and 100 are both divisible by **20**

$$\frac{15}{\cancel{100}^5} \times \frac{\cancel{60}^3}{1}$$

Divide:

- $60 \div 20 = 3$
- $100 \div 20 = 5$

Now the problem becomes:

Step 4: Simplify again

- $15 \div 5 = 3$

$$\frac{\cancel{15}^3}{\cancel{5}_1} \times \frac{3}{1} = \frac{9}{1}$$

✔ **15% of 60 = 9**

Why cross-cancel?

Cross-cancelling **reduces the numbers before multiplying**, which makes the calculation quicker and easier to do without a calculator.

Calculating percentage by cross cancelling before multiplying.

a. Find 25% of 70

$$\frac{\cancel{20}}{\cancel{100}} \times \frac{\cancel{70}}{1}$$

10 is a factor of 70 and 100 so we can divide by 10

The new fraction is now

$$\frac{\cancel{2}}{\cancel{10}} \times \frac{7}{1} = -$$

10 is a factor of 20 and 10 so we can divide by 10 again

25% of 70 =

b. Find 25% of 80

$$\frac{\cancel{25}}{\cancel{100}} \times \frac{80}{1}$$

25 is a factor of 25 and 100 so we can divide by 25

The new fraction is now

$$\frac{\cancel{4}}{\cancel{4}} \times \frac{\cancel{80}}{1} = -$$

4 is a factor of 4 and 80 so we can divide by 4

25% of 80 =

c. Find 25% of 60

$$\frac{\cancel{25}}{\cancel{100}} \times \frac{\cancel{60}}{1}$$

The new fraction is now

$$\frac{\cancel{1}}{\cancel{4}} \times \frac{\cancel{60}}{1} = \frac{15}{1}$$

4 is a factor of 4 and 60

25% of 60 =

d. Find 15% of 40

$$\frac{\cancel{15}}{\cancel{100}} \times \frac{\cancel{40}}{1}$$

20 is a factor of 40 and 100

The new fraction is now

$$\frac{\cancel{15}}{\cancel{20}} \times \frac{\cancel{40}}{1} = \frac{3}{1}$$

15% of 40 =

Try these using pen and paper.

e. 25% of 120 =

f. 20% of 110 =

g. 45% of 80 =

h. 30% of 90 =

i. 35% of 90 =