

GCSE - Numeracy and Mathematics**Topic:** Multiply and divide fractions and decimals**Tier:** Intermediate**Grade:**

D/E

**Starter:**

- 1) 43×27
- 2) 523×78
- 3) $675 \div 3$
- 4) $675 \div 3$

Top Tips!

Multiply fractions – Multiply top and bottom

Divide fractions – Flip the second fraction and multiply the fractions
e.g $3/4 \div 2/5 = 3/4 \times 5/2 = 15/8$

Multiply and divide mixed numbers – Change to top heavy fractions then treat them as ordinary fractions

Multiple decimals – Count the total number of decimal places in the question, multiply the numbers ignoring the decimal point, insert decimal point so you have the same number of decimal places as the question had.

e.g 2.3×3.56 (3 decimal places) $\rightarrow 23 \times 356 = 8188 \rightarrow 8.188$

Divide decimals – Multiply both numbers by a same factor of ten (10, 100, 1000 etc.) that makes the smaller number whole and then divide in the normal way.

e.g $3.05 \div 0.5$ (multiply both by 10) $\rightarrow 30.5 \div 5 = 6.1$

Skills:

- 1) 4.5×3.8
- 2) 12.3×0.24
- 3) $7.35 \div 0.7$
- 4) $68.1 \div 0.03$
- 5) $\frac{3}{5} \times \frac{3}{4}$
- 6) $\frac{2}{3} \div \frac{4}{5}$
- 7) $2\frac{3}{4} \times 3\frac{1}{3}$
- 8) $4\frac{1}{4} \div 1\frac{2}{5}$

Examination Question:**2013 Summer Unitised U1 Higher Q10**

- (a) A school's new photocopier will copy three times as many sheets as its old photocopier in the same amount of time.
It used to take 20 minutes to copy 500 sheets on the old photocopier.
How long will the new photocopier take to copy 600 similar sheets?
- (b) In one round of a competition, Sian is given an initial score of $6\frac{3}{5}$.
Her score is to be revised to take into account the degree of difficulty of that round.
Her new score is found by calculating $6\frac{3}{5} \div \frac{9}{10}$.
Find Sian's new score.
Your answer must be given as a whole number and a fraction (not as a decimal).

Assessment for Learning**Video / QR code**



Starter:

- 1) $43 \times 27 = 1161$
- 2) $523 \times 78 = 40794$
- 3) $675 \div 3 = 225$
- 4) $855 \div 9 = 95$

Skills:

- 1) $4.5 \times 3.8 = 17.1$
- 2) $12.3 \times 0.24 = 2.952$
- 3) $7.35 \div 0.7 = 10.5$
- 4) $68.1 \div 0.03 = 2270$
- 5) $\frac{3}{5} \times \frac{3}{4} = \frac{9}{20}$
- 6) $\frac{2}{3} \div \frac{4}{5} = \frac{2}{3} \times \frac{5}{4} = \frac{10}{12} = \frac{5}{6}$
- 7) $2\frac{3}{4} \times 3\frac{1}{3} = \frac{11}{4} \times \frac{10}{3} = \frac{110}{12} = \frac{55}{6} = 9\frac{1}{6}$
- 8) $4\frac{1}{4} \div 1\frac{2}{5} = \frac{9}{4} \div \frac{7}{5} = \frac{9}{4} \times \frac{5}{7} = \frac{45}{28} = 1\frac{17}{28}$

Top Tips!

Multiply fractions – Multiply top and bottom

Divide fractions – Flip the second fraction and multiply the fractions
e.g $\frac{3}{4} \div \frac{2}{5} = \frac{3}{4} \times \frac{5}{2} = \frac{15}{8}$

Multiply and divide mixed numbers – Change to top heavy fractions then treat them as ordinary fractions

Multiple decimals – Count the total number of decimal places in the question, multiply the numbers ignoring the decimal point, insert decimal point so you have the same number of decimal places as the question had.

e.g 2.3×3.56 (3 decimal places) $\rightarrow 23 \times 356 = 8188 \rightarrow 8.188$

Divide decimals – Multiply both numbers by a same factor of ten (10, 100, 1000 etc.) that makes the smaller number whole and then divide in the normal way.

e.g $3.05 \div 0.5$ (multiply both by 10) $\rightarrow 30.5 \div 5 = 6.1$

2013 Summer Unitised U1 Higher Q10

10. (a) A school's new photocopier will copy three times as many sheets as its old photocopier in the same amount of time.
It used to take 20 minutes to copy 500 sheets on the old photocopier.
How long will the new photocopier take to copy 600 similar sheets?

(b) In one round of a competition, Sian is given an initial score of $6\frac{3}{5}$.
Her score is to be revised to take into account the degree of difficulty of that round.

Her new score is found by calculating $6\frac{3}{5} \div \frac{9}{10}$.

Find Sian's new score.

Your answer must be given as a whole number and a fraction (not as a decimal).

a) $500 \div 20 = 25$ sheets a minute
 $600 \div 25 = 24$ minutes

b) $6\frac{3}{5} \div \frac{9}{10} = 6\frac{3}{5} \times \frac{10}{9} = \frac{33}{5} \times \frac{10}{9} = \frac{330}{45} = \frac{22}{3} = 7\frac{1}{3}$

Assessment for Learning

Video / QR code