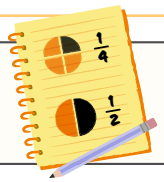
Dividing Fractions
ANSWERS



Section A *Reciprocals*

1) Prove that $\frac{3}{4} \times \frac{4}{3} = 1$

$\frac{3}{4} \times \frac{4}{3} = \frac{12}{12} = 1$

2) Fill in the blanks:

a) $\frac{2}{3} \times \boxed{\frac{3}{2}} = 1$

b) $\boxed{\frac{7}{5}} \times \frac{5}{7} = 1$

c) $1 = \frac{1}{2} \times \boxed{2}$

d) $\boxed{\frac{1}{8}} \times 8 = 1$

Any number multiplied by its reciprocal is equal to 1.

3) Find the reciprocal of each of the following numbers:

a) $\frac{6}{11}$ $\boxed{\frac{11}{6}}$

b) $-\frac{2}{3}$ $\boxed{-\frac{3}{2}}$

c) 5 $\boxed{\frac{1}{5}}$

d) $\frac{1}{2}$ $\boxed{2}$

e) $\frac{8}{19}$ $\boxed{\frac{19}{8}}$

f) $4\frac{2}{3}$ $\boxed{\frac{3}{14}}$

Section B *Dividing integers by fractions*

1)

1		
$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$

Explain how this diagram shows that $1 \div \frac{1}{3} = 3$.

$1 \div \frac{1}{3}$ means how many $\frac{1}{3}$'s are in 1.

The diagram shows that there are 3 lots of $\frac{1}{3}$ in 1.

2) Calculate the following:

a) $2 \div \frac{1}{3} = \boxed{6}$

b) $2 \div \frac{2}{3} = \boxed{3}$

c) $10 \div \frac{2}{3} = \boxed{30}$

d) $10 \div \frac{2}{5} = \boxed{25}$

e) $10 \div \frac{3}{5} = \boxed{16\frac{2}{3}}$

f) $21 \div 2\frac{1}{3} = \boxed{9}$

Section C *Dividing any pair of fractions*

1) Calculate:

a) $\frac{1}{3} \div \frac{1}{3} = \boxed{\frac{3}{2}}$

b) $\frac{2}{3} \div \frac{1}{2} = \boxed{\frac{4}{3}}$

c) $4\frac{2}{3} \div \frac{1}{2} = \boxed{9\frac{1}{3}}$

d) $\frac{5}{7} \div \frac{5}{12} = \boxed{1\frac{5}{7}}$

e) $-\frac{5}{12} \div \frac{4}{9} = \boxed{-\frac{15}{16}}$

f) $2\frac{1}{8} \div \frac{9}{10} = \boxed{2\frac{13}{36}}$

g) $\frac{9}{11} \div \frac{9}{11} = \boxed{1}$

h) $\frac{7}{12} \div \frac{3}{4} \div \frac{1}{2} = \boxed{1\frac{5}{9}}$

i) $3\frac{1}{7} \div 5\frac{1}{2} = \boxed{\frac{4}{7}}$

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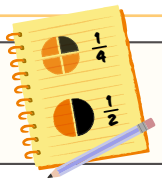

cazoom!

Section D *Identify and explain the mistake:*

1) $\frac{6}{20} \div \frac{4}{3} = \frac{20}{6} \times \frac{4}{3}$ $= \frac{80}{18}$ $= 4\frac{4}{9}$ The reciprocal of both fractions has been multiplied. The correct calculation is $\frac{6}{20} \times \frac{3}{4}$.	2) $\frac{3}{8} \div 4 = \frac{3}{8} \times \frac{4}{1}$ $= \frac{12}{8}$ $= 1\frac{1}{2}$ The reciprocal of 4 is $\frac{1}{4}$ so dividing by 4 is the same as multiplying by $\frac{1}{4}$. The correct calculation is $\frac{3}{8} \times \frac{1}{4} = \frac{3}{32}$.

Section E *Simplify the following:*

a) $\frac{a}{b} \div \frac{c}{d} = \frac{ad}{bc}$	d) $a \div \frac{b}{c} = \frac{ac}{b}$	g) $\frac{2a}{b} \div \frac{2a^2}{7b} = \frac{7}{a}$
b) $\frac{a}{b} \div \frac{a}{c} = \frac{c}{b}$	e) $\frac{a}{b} \div c = \frac{a}{bc}$	h) $\frac{a}{2} \div \frac{a}{2} = 1$
c) $\frac{a}{7} \div \frac{2}{a} = \frac{a^2}{14}$	f) $\frac{2a}{b} \div \frac{c}{7b} = \frac{14a}{c}$	i) $\frac{(x+1)}{7} \div \frac{(x+2)}{3} = \frac{3(x+1)}{7(x+2)}$

Section F *Complete each puzzle below:*

1) **Use each of the following numbers to make the calculations correct.**

1	2	2	3	3	5
5	7	9	10	18	35

There are multiple solutions to these, ask your partner to check yours. Discuss with them how you could change your answers and still be correct.

2) **Fill the gaps in the multiplication grid.**

×	$\frac{1}{2}$	$\frac{1}{6}$	$\frac{8}{15}$
8	4	$\frac{4}{3}$	$4\frac{4}{15}$
6	3	1	$3\frac{1}{5}$
5	$2\frac{1}{2}$	$\frac{5}{6}$	$2\frac{2}{3}$