GCSE OCR Math J560

Fractions

Answers

"We will help you to achieve A Star "

Answer 1

(b) Work out $\dfrac{3}{5} - \dfrac{1}{3}$

$$= \dfrac{3 \times 3}{5 \times 3} - \dfrac{5 \times 1}{5 \times 3}$$

$$= \dfrac{9 - 5}{15}$$

$$= \dfrac{4}{15}$$

Answer 2

Show that $\dfrac{4}{9} - \dfrac{1}{6} = \dfrac{5}{18}$

Lowest common denominator is 18

$$\dfrac{8}{18} - \dfrac{3}{18} = \dfrac{5}{18} \quad QED$$

Answer 3

(a) Work out $\dfrac{1}{7} \times \dfrac{2}{3}$ $= \dfrac{1 \times 2}{7 \times 3} = \dfrac{2}{21}$

Answer 4

Show that $\dfrac{3}{4} + \dfrac{4}{5} = 1\dfrac{11}{20}$

$$\dfrac{5}{5} \times \dfrac{3}{4} + \dfrac{4}{4} \times \dfrac{4}{5} = RHS$$

$$\dfrac{15}{20} + \dfrac{16}{20} = RHS$$

$$\dfrac{31}{20} = RHS$$

$$1\dfrac{11}{20} = RHS = LHS$$

Answer 5

Show that $\dfrac{5}{6} - \dfrac{3}{4} = \dfrac{1}{12}$

12 is lowest common multiple of all Denominators.

SO:

$$\dfrac{5}{6} \times \dfrac{2}{2} = \dfrac{10}{12} \ , \ \dfrac{3}{4} \times \dfrac{3}{3} = \dfrac{9}{12}$$

$$\dfrac{10}{12} - \dfrac{9}{12} = \dfrac{10-9}{12} = \dfrac{1}{12}$$

Answer 6

(b) Work out $2\dfrac{7}{15} - 1\dfrac{2}{3}$

$$= \dfrac{37}{15} - \dfrac{5}{3} \quad \times 5$$

$$= \dfrac{37}{15} - \dfrac{25}{15} \quad \times 5$$

Answer

$$= \dfrac{37-25}{15}$$

$$= \dfrac{12}{15} = \dfrac{4 \times 3}{5 \times 3} = \dfrac{4}{5}$$

Answer 7

(b) Work out $1\dfrac{1}{5} \div \dfrac{3}{4}$

Give your answer as a mixed number in its simplest form.

$= \dfrac{6}{5} \div \dfrac{3}{4}$

$= \dfrac{\overset{2}{6}}{5} \times \dfrac{4}{\underset{1}{3}}$ ⟩ "FLIP 'N' TIMES"

$1\dfrac{1}{5} = 1 + \dfrac{1}{5}$

$= \dfrac{5}{5} + \dfrac{1}{5}$

$= \dfrac{6}{5}$

$= \dfrac{8}{5}$

$= \dfrac{5}{5} + \dfrac{3}{5}$

$= 1 + \dfrac{3}{5}$

$= 1\dfrac{3}{5}$

Answer 8

(b) Show that $\dfrac{5}{8} \div \dfrac{7}{12} = 1\dfrac{1}{14}$

Dividing is the same as multiplying by the reciprocal

$\therefore \div \dfrac{7}{12} = \times \dfrac{12}{7}$

$\rightarrow \dfrac{5}{8} \times \dfrac{12}{7} = \dfrac{60}{56} = \dfrac{15}{14} = 1\dfrac{1}{4}$

Answer 9

Show that $\dfrac{3}{8} \div \dfrac{7}{12} = \dfrac{9}{14}$

Multiplying by the Reciprocal is equivalent to division

$$\frac{3}{8} \times \frac{12}{7} = \frac{36}{56} = \frac{9}{14}$$

Answer 10

(a) Work out $1\dfrac{1}{5} \times 2\dfrac{1}{3}$

Give your answer as a mixed number in its simplest form.

$$1\tfrac{1}{5} \times 2\tfrac{1}{3} = \frac{\cancel{6}^{2}}{5} \times \frac{7}{\cancel{3}_{1}}$$

$$= \frac{14}{5}$$

$$= \frac{10+4}{5}$$

$$= 2\tfrac{4}{5}$$

Answer 11

(b) Write the numbers 3, 4, 5 and 6 in the boxes to give the greatest possible total.
You may write each number only once.

$$5\frac{1}{4} + 6\frac{2}{3}$$

BIGGEST NUMBERS (EITHER WAY ROUND)

WHICH IS BIGGER
$$\begin{cases} \frac{1}{3} + \frac{2}{4} = \frac{4}{12} + \frac{6}{12} = \frac{10}{12} \\ \frac{1}{4} + \frac{2}{3} = \frac{3}{12} + \frac{8}{12} = \frac{11}{12} ✓ \end{cases}$$

Answer 12

(b) Show that $5\frac{1}{4} - 1\frac{2}{3} = 3\frac{7}{12}$

$$\frac{21}{4} - \frac{5}{3} = \frac{63}{12} - \frac{20}{12} = \frac{43}{12}$$

$$\frac{43}{12} = 3\frac{7}{12}$$

Answer 13

(b) Show that $\quad 2\dfrac{1}{4} \div 3\dfrac{1}{2} = \dfrac{9}{14}$

$\dfrac{9}{4} \div \dfrac{7}{2}$ Inverse fraction multiplied is equivalent to division

$\dfrac{9}{4} \times \dfrac{2}{7}$

$\dfrac{18}{28} = \dfrac{9}{14}$

Answer 14

(a) Show that $\quad \dfrac{3}{10} + \dfrac{2}{15} = \dfrac{13}{30}$

$\dfrac{3}{3} \times \dfrac{3}{10} + \dfrac{2}{2} \times \dfrac{2}{15} = RHS$

$\dfrac{9}{30} + \dfrac{4}{30} = RHS$

$\dfrac{13}{30} = RHS = LHS$

Answer 15

(a) Work out $2\dfrac{1}{4} \times 3\dfrac{1}{3}$ → EXPRESS AS TOP HEAVY FRACTIONS FIRST

Give your answer as a mixed number in its simplest form.

$$2\tfrac{1}{4} = \frac{2\times4}{4} + \frac{1}{4} = \frac{8+1}{4} = \frac{9}{4}$$

$$3\tfrac{1}{3} = \frac{3\times3}{3} + \frac{1}{3} = \frac{9+1}{3} = \frac{10}{3}$$

$$\text{SO} \quad 2\tfrac{1}{4} \times 3\tfrac{1}{3} = \frac{\cancel{9}^{3}}{\cancel{4}_{2}} \times \frac{\cancel{10}^{5}}{\cancel{3}_{1}} = \frac{15}{2}$$

$$= \frac{14}{2} + \frac{1}{2}$$

$$= \underline{\underline{7\tfrac{1}{2}}}$$