

Grade 6 – Book B
Teachers Guidelines
(Revised CAPS edition)
Revised for 2023

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Chapter B1 Fractions

B1.1 Basic fractions:

Exercise 1:

Date: _____

(1) Answer the questions.

2 5 31 45 32 33

(a) Which fraction of the numbers in the block is even numbers? $\frac{2}{6} = \frac{1}{3}$

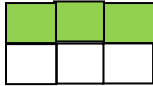
(b) Which fraction of the numbers in the block isn't even numbers? $\frac{4}{6} = \frac{2}{3}$

(c) Which fraction of the numbers in the block has a '3' in the number? $\frac{3}{6} = \frac{1}{2}$

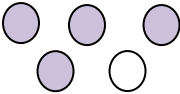
(d) Which fraction of the numbers in the block has a '2' in the number? $\frac{2}{6} = \frac{1}{3}$

(e) How many elements in the block are natural numbers? **6**

(2) Which fraction of the diagrams is shaded and which fraction is not shaded?

(a)  $\frac{3}{6}$

Fractions shaded: $\frac{3}{6}$

(b)  $\frac{4}{5}$

Fractions shaded: $\frac{4}{5}$

Fractions not shaded: $\frac{3}{6}$ $\frac{1}{5}$



Fractions shaded: $\frac{4}{4}$ $\frac{2}{3}$

Fractions not shaded: $\frac{0}{4}$ $\frac{1}{3}$

(3) Use the table to arrange the fractions in ascending order.

1 whole							
$\frac{1}{2}$				$\frac{1}{2}$			
$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		4	
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

$\frac{1}{2}; \frac{1}{4}; \frac{2}{2}; \frac{1}{8}$	\rightarrow	$\frac{1}{8}; \frac{1}{4}; \frac{1}{2}; \frac{2}{2}$
$\frac{3}{4}; \frac{1}{4}; \frac{7}{4}; \frac{1}{1}$	\rightarrow	$\frac{1}{4}; \frac{3}{4}; \frac{1}{1}; \frac{7}{4}$
$\frac{4}{4}; \frac{1}{2}; \frac{1}{4}; \frac{3}{4}$	\rightarrow	$\frac{1}{4}; \frac{1}{2}; \frac{3}{4}; \frac{4}{4}$

Proper fraction: Numerator less than the denominator $\frac{1}{4}$ The fraction is less than 1 ..	Improper fraction: Numerator greater than the denominator $\frac{6}{4}$ The fraction is greater than 1
Mixed numbers: A number written as a combination of an <u>integer</u> and a proper <u>fraction</u> . $3\frac{1}{4}$	
To convert improper fractions to mixed numbers is the same as division:	
$\frac{9}{4} = 2 \text{ r } 1 \text{ therefore: } \frac{9}{4} = 2\frac{1}{4}$	

Exercise 2:

Date : _____

(1) Convert the improper fractions to mixed numbers:

(1) $\frac{7}{4} = 1\frac{3}{4}$	(2) $\frac{9}{2} = 4\frac{1}{2}$	(3) $\frac{18}{5} = 3\frac{3}{5}$	(4) $\frac{27}{4} = 6\frac{3}{4}$
(5) $\frac{33}{4} = 8\frac{1}{4}$	(6) $\frac{25}{6} = 4\frac{1}{6}$	(7) $\frac{47}{6} = 7\frac{5}{6}$	(8) $\frac{40}{7} = 5\frac{5}{7}$
(9) $\frac{69}{8} = 8\frac{5}{8}$	(10) $\frac{50}{8} = 6\frac{2}{8}$	(11) $\frac{20}{9} = 2\frac{2}{9}$	(12) $\frac{147}{12} = 12\frac{3}{12}$
(13) $\frac{16}{5} = 3\frac{1}{5}$	(14) $\frac{13}{2} = 6\frac{1}{2}$	(15) $\frac{17}{4} = 4\frac{1}{4}$	(16) $\frac{19}{3} = 6\frac{1}{3}$
(17) $\frac{39}{6} = 6\frac{3}{6}$	(18) $\frac{45}{7} = 6\frac{3}{7}$	(19) $\frac{29}{2} = 14\frac{1}{2}$	(20) $\frac{100}{9} = 11\frac{1}{9}$
(21) $\frac{32}{15} = 2\frac{2}{15}$	(22) $\frac{30}{25} = 1\frac{5}{25}$	(23) $\frac{81}{20} = 4\frac{1}{20}$	(24) $\frac{112}{10} = 11\frac{2}{10}$
(25) $\frac{50}{12} = 4\frac{2}{12}$	(26) $\frac{65}{20} = 3\frac{5}{20}$	(27) $\frac{78}{11} = 7\frac{1}{11}$	(28) $\frac{32}{15} = 2\frac{2}{15}$
(29) $\frac{66}{15} = 4\frac{6}{15}$	(30) $\frac{56}{5} = 11\frac{1}{5}$	(31) $\frac{37}{4} = 9\frac{1}{4}$	(32) $\frac{21}{2} = 10\frac{1}{2}$
(33) $\frac{110}{25} = 4\frac{10}{25}$	(34) $\frac{38}{5} = 7\frac{3}{5}$	(35) $\frac{25}{3} = 8\frac{1}{3}$	(36) $\frac{50}{4} = 12\frac{2}{4}$
(37) $\frac{105}{25} = 4\frac{5}{25}$	(38) $\frac{38}{4} = 9\frac{2}{4}$	(39) $\frac{105}{20} = 5\frac{5}{20}$	(40) $\frac{46}{15} = 3\frac{1}{15}$

Exercise 3:

Date: _____



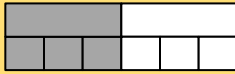
$$2 \frac{1}{4} = \frac{9}{4} \quad (2 \times 4 + 1 = 9)$$

(1) Convert the mixed numbers to improper fractions:

(1) $1 \frac{1}{2} = \frac{3}{2}$	(2) $1 \frac{1}{3} = \frac{4}{3}$	(3) $1 \frac{1}{4} = \frac{5}{4}$	(4) $1 \frac{1}{5} = \frac{6}{5}$
(5) $3 \frac{1}{3} = \frac{10}{3}$	(6) $2 \frac{2}{3} = \frac{8}{3}$	(7) $2 \frac{3}{5} = \frac{13}{5}$	(8) $1 \frac{1}{9} = \frac{10}{9}$
(9) $2 \frac{3}{4} = \frac{11}{4}$	(10) $2 \frac{1}{9} = \frac{19}{9}$	(11) $3 \frac{1}{3} = \frac{10}{3}$	(12) $3 \frac{1}{8} = \frac{25}{8}$
(13) $1 \frac{1}{6} = \frac{7}{6}$	(14) $2 \frac{3}{7} = \frac{17}{7}$	(15) $25 \frac{1}{4} = \frac{101}{4}$	(16) $1 \frac{1}{8} = \frac{9}{8}$
(17) $1 \frac{2}{10} = \frac{12}{10}$	(18) $1 \frac{2}{6} = \frac{8}{6}$	(19) $1 \frac{3}{5} = \frac{8}{5}$	(20) $1 \frac{3}{4} = \frac{7}{4}$
(21) $5 \frac{1}{6} = \frac{31}{6}$	(22) $4 \frac{3}{8} = \frac{35}{8}$	(23) $9 \frac{3}{4} = \frac{39}{4}$	(24) $45 \frac{1}{2} = \frac{91}{2}$
(25) $3 \frac{4}{6} = \frac{22}{6}$	(26) $9 \frac{1}{5} = \frac{46}{5}$	(27) $6 \frac{3}{4} = \frac{27}{4}$	(28) $8 \frac{1}{8} = \frac{65}{8}$
(29) $5 \frac{3}{7} = \frac{38}{7}$	(30) $8 \frac{3}{5} = \frac{43}{5}$	(31) $11 \frac{3}{4} = \frac{47}{4}$	(32) $12 \frac{1}{7} = \frac{85}{7}$
(33) $7 \frac{1}{8} = \frac{57}{8}$	(34) $4 \frac{1}{8} = \frac{33}{8}$	(35) $9 \frac{1}{2} = \frac{19}{2}$	(36) $5 \frac{1}{3} = \frac{16}{3}$
(37) $4 \frac{1}{5} = \frac{21}{5}$	(38) $6 \frac{3}{8} = \frac{51}{8}$	(39) $7 \frac{3}{4} = \frac{31}{4}$	(40) $9 \frac{1}{8} = \frac{73}{8}$
(41) $2 \frac{1}{15} = \frac{31}{15}$	(42) $6 \frac{2}{9} = \frac{56}{9}$	(43) $9 \frac{2}{7} = \frac{65}{7}$	(44) $25 \frac{1}{3} = \frac{76}{3}$
(45) $15 \frac{1}{4} = \frac{61}{4}$	(46) $10 \frac{3}{8} = \frac{83}{8}$	(47) $8 \frac{3}{12} = \frac{99}{12}$	(48) $35 \frac{1}{2} = \frac{71}{2}$
(49) $2 \frac{1}{5} = \frac{11}{5}$	(50) $11 \frac{3}{12} = \frac{135}{12}$	(51) $12 \frac{2}{8} = \frac{98}{8}$	(52) $6 \frac{3}{8} = \frac{51}{8}$
(53) $3 \frac{1}{9} = \frac{28}{9}$	(54) $6 \frac{3}{6} = \frac{39}{6}$	(55) $2 \frac{7}{8} = \frac{23}{8}$	(56) $8 \frac{7}{8} = \frac{71}{8}$

B1.3 Equivalent fractions:**Exercise 4:**

Date: _____

EQUIVALENT FRACTIONS

$$\frac{1}{2} \times \frac{3}{3} = \frac{3}{6} \quad \text{therefore: } \frac{1}{2} = \frac{3}{6}$$

**REMEMBER
THE GOLDEN
RULE!**

(1) Write the equivalent fractions:

GOLDEN RULE: Whatever you do to the numerator must be applied to the denominator as well.

(a) $\frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$	(b) $\frac{1}{4} \times \frac{4}{4} = \frac{4}{16}$	(c) $\frac{1}{3} \times \frac{3}{3} = \frac{3}{9}$
(d) $\frac{4}{8} \times \frac{4}{4} = \frac{16}{32}$	(e) $\frac{4}{7} \times \frac{5}{5} = \frac{20}{35}$	(f) $\frac{3}{4} \times \frac{5}{5} = \frac{15}{20}$
(g) $\frac{3}{6} \times \frac{4}{4} = \frac{12}{24}$	(h) $\frac{5}{8} \times \frac{5}{5} = \frac{25}{40}$	(i) $\frac{3}{9} \times \frac{3}{3} = \frac{1}{3}$
(j) $\frac{4}{7} \times \frac{9}{9} = \frac{36}{63}$	(k) $\frac{3}{6} \times \frac{7}{7} = \frac{21}{42}$	(l) $\frac{2}{3} \times \frac{20}{20} = \frac{40}{60}$
(m) $\frac{4}{9} \times \frac{10}{10} = \frac{40}{90}$	(n) $\frac{2}{9} \times \frac{9}{9} = \frac{18}{81}$	(o) $\frac{1}{5} \times \frac{14}{14} = \frac{14}{70}$

(2) Write the following as improper fractions and complete the equivalent fractions.

(a) $2\frac{1}{3} = \frac{7}{3} \times \frac{4}{4} = \frac{28}{12}$	(b) $4\frac{1}{2} = \frac{9}{2} \times \frac{3}{3} = \frac{27}{6}$	(c) $1\frac{1}{3} = \frac{4}{3} \times \frac{7}{7} = \frac{28}{21}$
(d) $3\frac{1}{2} = \frac{7}{2} \times \frac{7}{7} = \frac{49}{14}$	(e) $7\frac{2}{4} = \frac{30}{4} \times \frac{3}{3} = \frac{90}{12}$	(f) $6\frac{4}{6} = \frac{40}{6} \times \frac{3}{3} = \frac{120}{18}$
(g) $3\frac{3}{4} = \frac{15}{4} \times \frac{4}{4} = \frac{60}{16}$	(h) $3\frac{1}{5} = \frac{16}{5} \times \frac{2}{2} = \frac{32}{10}$	(i) $8\frac{1}{5} = \frac{41}{5} \times \frac{2}{2} = \frac{82}{10}$
(j) $3\frac{2}{3} = \frac{11}{3} \times \frac{7}{7} = \frac{77}{21}$	(k) $3\frac{3}{4} = \frac{15}{4} \times \frac{3}{3} = \frac{45}{12}$	(l) $6\frac{2}{3} = \frac{20}{3} \times \frac{5}{5} = \frac{100}{15}$
(m) $6\frac{3}{7} = \frac{45}{7} \times \frac{2}{2} = \frac{90}{14}$	(n) $6\frac{1}{4} = \frac{25}{4} \times \frac{3}{3} = \frac{75}{12}$	(o) $2\frac{7}{9} = \frac{25}{9} \times \frac{3}{3} = \frac{75}{27}$

B1.4 Simplifying of fractions:**Exercise 5:**

Date: _____

SIMPLIFY THE FRACTIONS**HCF(GCF) of 28 and 32 is 4**

$$\frac{28}{32} = \frac{y}{8} \quad \frac{28}{32} \div \frac{4}{4} = \frac{7}{8} \quad \text{therefore } y = 7$$

(1) Calculate the value of the unknown.**SECRET:** Find the HCF (GCF) of the numerator and the denominator and then simplify the fraction.

<p>(1) $\frac{8}{16} = \frac{x}{4}$ GCF = 4</p> <p>$\therefore \frac{8}{16} \div \frac{4}{4} = \frac{2}{4}$</p> <p>Therefore $x = \underline{2}$</p>	<p>(2) $\frac{9}{30} = \frac{y}{10}$ GCF = 3</p> <p>$\therefore \frac{9}{30} \div \frac{3}{3} = \frac{3}{10}$</p> <p>Therefore $y = \underline{3}$</p>	<p>(3) $\frac{16}{40} = \frac{x}{5}$ GCF = 8</p> <p>$\therefore \frac{16}{40} \div \frac{8}{8} = \frac{2}{5}$</p> <p>Therefore $x = \underline{2}$</p>
<p>(4) $\frac{15}{35} = \frac{m}{7}$ GCF = 5</p> <p>$\therefore \frac{15}{35} \div \frac{5}{5} = \frac{3}{7}$</p> <p>Therefore $m = \underline{3}$</p>	<p>(5) $\frac{36}{48} = \frac{n}{4}$ GCF = 12</p> <p>$\frac{36}{48} \div \frac{12}{12} = \frac{3}{4}$</p> <p>Therefore $n = \underline{3}$</p> <p>_____</p>	<p>(6) $\frac{18}{81} = \frac{c}{9}$ GCF = 9</p> <p>$\frac{18}{81} \div \frac{9}{9} = \frac{2}{9}$</p> <p>Therefore $c = \underline{2}$</p> <p>_____</p>
<p>(7) $\frac{3}{18} = \frac{1}{x}$ GCF = 3</p> <p>$\frac{3}{18} \div \frac{3}{3} = \frac{1}{6}$</p> <p>Therefore $x = \underline{6}$</p> <p>_____</p>	<p>(8) $\frac{20}{45} = \frac{4}{m}$ GCF = 5</p> <p>$\frac{20}{45} \div \frac{5}{5} = \frac{4}{9}$</p> <p>Therefore $m = \underline{9}$</p> <p>_____</p>	<p>(9) $\frac{25}{125} = \frac{1}{k}$ GCF = 25</p> <p>$\frac{25}{125} \div \frac{25}{25} = \frac{1}{5}$</p> <p>Therefore $k = \underline{5}$</p> <p>_____</p>
<p>(10) $\frac{24}{64} = \frac{x}{8}$ GCF = 8</p> <p>$\frac{24}{64} \div \frac{8}{8} = \frac{3}{8}$</p> <p>Therefore $x = \underline{3}$</p> <p>_____</p>	<p>(11) $\frac{50}{90} = \frac{5}{m}$ GCF = 10</p> <p>$\frac{50}{90} \div \frac{10}{10} = \frac{5}{9}$</p> <p>Therefore $m = \underline{9}$</p> <p>_____</p>	<p>(12) $\frac{21}{28} = \frac{3}{k}$ GCF = 7</p> <p>$\frac{21}{28} \div \frac{7}{7} = \frac{3}{4}$</p> <p>Therefore $k = \underline{4}$</p> <p>_____</p>

MULTIPLES (Large numbers)

Exercise B1E:

Date: _____

Write down the answers.

$$\begin{array}{r} \text{(a)} \quad 25 \\ \times 8 \\ \hline \end{array}$$

200

$$\begin{array}{r} \text{(b)} \quad 45 \\ \times 8 \\ \hline \end{array}$$

360

$$\begin{array}{r} \text{(c)} \quad 25 \\ \times 16 \\ \hline \end{array}$$

400

$$\begin{array}{r} \text{(d)} \quad 25 \\ \times 12 \\ \hline \end{array}$$

300

$$\begin{array}{r} \text{(e)} \quad 150 \\ \times 3 \\ \hline \end{array}$$

450

$$\begin{array}{r} \text{(f)} \quad 45 \\ \times 4 \\ \hline \end{array}$$

180

$$\begin{array}{r} \text{(g)} \quad 25 \\ \times 30 \\ \hline \end{array}$$

750

$$\begin{array}{r} \text{(h)} \quad 35 \\ \times 5 \\ \hline \end{array}$$

175

$$\begin{array}{r} \text{(i)} \quad 250 \\ \times 6 \\ \hline \end{array}$$

1 500

$$\begin{array}{r} \text{(j)} \quad 15 \\ \times 6 \\ \hline \end{array}$$

90

$$\begin{array}{r} \text{(k)} \quad 50 \\ \times 4 \\ \hline \end{array}$$

200

$$\begin{array}{r} \text{(l)} \quad 15 \\ \times 7 \\ \hline \end{array}$$

105

$$\begin{array}{r} \text{(m)} \quad 200 \\ \times 6 \\ \hline \end{array}$$

1 200

$$\begin{array}{r} \text{(n)} \quad 35 \\ \times 8 \\ \hline \end{array}$$

280

$$\begin{array}{r} \text{(o)} \quad 125 \\ \times 9 \\ \hline \end{array}$$

1 125

$$\begin{array}{r} \text{(p)} \quad 125 \\ \times 4 \\ \hline \end{array}$$

500

$$\begin{array}{r} \text{(q)} \quad 28 \\ \times 5 \\ \hline \end{array}$$

140

$$\begin{array}{r} \text{(r)} \quad 15 \\ \times 8 \\ \hline \end{array}$$

120

$$\begin{array}{r} \text{(s)} \quad 25 \\ \times 0 \\ \hline \end{array}$$

0

$$\begin{array}{r} \text{(t)} \quad 11 \\ \times 15 \\ \hline \end{array}$$

165

Total out of 20:

MULTIPLY BY '11'.

To multiply by '11': $\overset{\curvearrowright}{2}3 \times 11 = 253$ ($2+3=5$ add the two numbers to get the middle number.)

Encircle the multiples of 11.

297	392	231	374	197	198	385	111	495	484
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Study the following. There are more sums on page 104.

$$253 \times 11 = 2783$$

$$117 \times 11 = 1287$$

Use a calculator to check the answers.

<p>(13) $\frac{14}{21} = \frac{c}{3}$ GCF = <u>7</u></p> <p>$\frac{14}{21} \div \frac{7}{7} = \frac{2}{3}$</p> <p>Therefore $c = 2$</p> <hr/>	<p>(14) $\frac{12}{15} = \frac{c}{5}$ GCF = <u>3</u></p> <p>$\frac{12}{15} \div \frac{3}{3} = \frac{4}{5}$</p> <p>Therefore $c = 4$</p> <hr/>	<p>(15) $\frac{8}{12} = \frac{c}{3}$ GCF = <u>4</u></p> <p>$\frac{8}{12} \div \frac{4}{4} = \frac{2}{3}$</p> <p>Therefore $c = 2$</p> <hr/>
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B1.5 Operations with fractions:

B1.5.1 Compare the fractions:

LCM = Lowest Common Multiple

<p>$\frac{1}{4}$ and $\frac{2}{3}$</p> <p>LCM = 12</p> <p>$\frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$ and $\frac{2}{3} \times \frac{4}{4} = \frac{8}{12}$ therefore is \longrightarrow</p>	<p>Multiples of:</p> <p>4: 4; 8; 12; 16 ...</p> <p>3: 3; 6; 9; 12; 15 ...</p> <p>$\frac{1}{4} < \frac{2}{3}$</p>
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Exercise 6:

Date: _____

Determine the common denominators and do the sums. Fill in $<$, $>$ or $=$:

<p>(1) $\frac{2}{5}$ and $\frac{1}{2}$</p> <p>LCM = <u>10</u></p> <p>$\frac{2}{5} \times \frac{2}{2} \square \frac{1}{2} \times \frac{5}{5}$</p> <p>$\frac{4}{10} < \frac{5}{10}$ ($\frac{2}{5} < \frac{1}{2}$)</p>	<p>(2) $\frac{1}{4}$ and $\frac{2}{16}$</p> <p>LCM = <u>16</u></p> <p>$\frac{1}{4} \times \frac{4}{4} \square \frac{2}{16}$</p> <p>$\frac{4}{16} > \frac{2}{16}$</p>	<p>(3) $\frac{4}{6}$ and $\frac{1}{3}$</p> <p>LCM = <u>6</u></p> <p>$\frac{4}{6} \square \frac{1}{3} \times \frac{2}{2}$</p> <p>$\frac{4}{6} > \frac{2}{6}$</p>
<p>(4) $\frac{3}{8}$ and $\frac{3}{4}$</p> <p>LCM = <u>8</u></p> <p>$\frac{3}{8} \square \frac{3}{4} \times \frac{2}{2}$</p> <p>$\frac{3}{8} < \frac{6}{8}$</p>	<p>(5) $\frac{1}{6}$ and $\frac{3}{5}$</p> <p>LCM = <u>30</u></p> <p>$\frac{1}{6} \times \frac{5}{5} \square \frac{3}{5} \times \frac{6}{6}$</p> <p>$\frac{5}{30} < \frac{18}{30}$</p>	<p>(6) $\frac{1}{2}$ and $\frac{2}{4}$</p> <p>LCM = <u>4</u></p> <p>$\frac{1}{2} \times \frac{2}{2} \square \frac{2}{4}$</p> <p>$\frac{2}{4} = \frac{2}{4}$</p>

(7) $\frac{1}{3}$ and $\frac{2}{6}$

LCM = 6

$\frac{1}{3} \times \frac{2}{2} \square \frac{2}{6}$

$\frac{2}{6} = \frac{2}{6}$

(8) $\frac{4}{7}$ and $\frac{1}{3}$

LCM = 21

$\frac{4}{7} \times \frac{3}{3} \square \frac{1}{3} \times \frac{7}{7}$

$\frac{12}{21} > \frac{7}{21}$

(9) $\frac{2}{4}$ and $\frac{5}{6}$

LCM = 12

$\frac{2}{4} \times \frac{3}{3} \square \frac{5}{6} \times \frac{2}{2}$

$\frac{6}{12} < \frac{10}{12}$

(10) $\frac{4}{6}$ and $\frac{5}{7}$

LCM = 42

$\frac{4}{6} \times \frac{7}{7} \square \frac{5}{7} \times \frac{6}{6}$

$\frac{28}{42} < \frac{30}{42}$

(11) $\frac{2}{5}$ and $\frac{1}{2}$

LCM = 10

$\frac{2}{5} \times \frac{2}{2} \square \frac{1}{2} \times \frac{5}{5}$

$\frac{4}{10} < \frac{5}{10}$

(12) $\frac{2}{5}$ and $\frac{3}{6}$

LCM = 30

$\frac{2}{5} \times \frac{6}{6} \square \frac{3}{6} \times \frac{5}{5}$

$\frac{12}{30} < \frac{15}{30}$

(13) $\frac{3}{4}$ and $\frac{2}{6}$

LCM = 12

$\frac{3}{4} \times \frac{3}{3} \square \frac{2}{6} \times \frac{2}{2}$

$\frac{9}{12} > \frac{4}{12}$

(14) $\frac{2}{7}$ and $\frac{1}{5}$

LCM = 35

$\frac{2}{7} \times \frac{5}{5} \square \frac{1}{5} \times \frac{7}{7}$

$\frac{10}{35} > \frac{7}{35}$

(15) $\frac{2}{45}$ and $\frac{3}{15}$

LCM = 45

$\frac{2}{45} \square \frac{3}{15} \times \frac{3}{3}$

$\frac{2}{45} < \frac{9}{45}$

(16) $\frac{7}{16}$ and $\frac{3}{4}$

LCM = 16

$\frac{7}{16} \square \frac{3}{4} \times \frac{4}{4}$

$\frac{7}{16} < \frac{12}{16}$

(17) $\frac{3}{5}$ and $\frac{1}{4}$

LCM = 20

$\frac{3}{5} \times \frac{4}{4} \square \frac{1}{4} \times \frac{5}{5}$

$\frac{12}{20} > \frac{5}{20}$

(18) $\frac{7}{10}$ and $\frac{2}{4}$

LCM = 20

$\frac{7}{10} \times \frac{2}{2} \square \frac{2}{4} \times \frac{5}{5}$

$\frac{14}{20} > \frac{10}{20}$

(19) $\frac{2}{8}$ and $\frac{3}{6}$

LCM = 24

$\frac{2}{8} \times \frac{3}{3} \square \frac{3}{6} \times \frac{4}{4}$

$\frac{6}{24} < \frac{12}{24}$

(20) $\frac{3}{15}$ and $\frac{2}{4}$

LCM = 60

$\frac{3}{15} \times \frac{4}{4} \square \frac{2}{4} \times \frac{15}{15}$

$\frac{12}{60} < \frac{30}{60}$

(21) $\frac{5}{35}$ and $\frac{10}{70}$

LCM = 70

$\frac{5}{35} \times \frac{2}{2} \square \frac{10}{70}$

$\frac{10}{70} = \frac{10}{70}$

B1.5.2 Addition of fractions:**Exercise 7:**

Date: _____

$$\begin{aligned} & \frac{2}{3} + \frac{4}{6} \\ &= \frac{2}{3} \times \frac{2}{2} + \frac{4}{6} \\ &= \frac{4}{6} + \frac{4}{6} \text{ or } \frac{4+4}{6} \\ &= \frac{8}{6} \text{ (Simplify)} \\ &= 1\frac{2}{6} \text{ (Simplify)} \\ &= 1\frac{1}{3} \end{aligned}$$

$$\begin{aligned} (1) \quad & \frac{2}{4} + \frac{1}{8} \\ &= \frac{2}{4} \times \frac{2}{2} + \frac{1}{8} \\ &= \frac{4}{8} + \frac{1}{8} \\ &= \frac{5}{8} \\ &= \end{aligned}$$

$$\begin{aligned} (2) \quad & \frac{1}{5} + \frac{3}{10} \\ &= \frac{1}{5} \times \frac{2}{2} + \frac{3}{10} \\ &= \frac{2}{10} + \frac{3}{10} \\ &= \frac{5}{10} \\ &= \frac{1}{2} \text{ (Simplify)} \end{aligned}$$

$$\begin{aligned} (3) \quad & \frac{10}{15} + \frac{2}{5} \\ &= \frac{10}{15} + \frac{2}{5} \times \frac{3}{3} \\ &= \frac{10}{15} + \frac{6}{15} \\ &= \frac{16}{15} \\ &= 1\frac{1}{15} \text{ (Simplify)} \end{aligned}$$

$$\begin{aligned} (4) \quad & \frac{1}{4} + \frac{3}{8} \\ &= \frac{1}{4} \times \frac{2}{2} + \frac{3}{8} \\ &= \frac{2}{8} + \frac{3}{8} \\ &= \frac{5}{8} \end{aligned}$$

$$\begin{aligned} (5) \quad & \frac{2}{6} + \frac{1}{3} \\ &= \frac{2}{6} + \frac{1}{3} \times \frac{2}{2} \\ &= \frac{2}{6} + \frac{2}{6} \\ &= \frac{4}{6} \\ &= \frac{2}{3} \text{ (Simplify)} \end{aligned}$$

$$\begin{aligned} (6) \quad & \frac{2}{3} + \frac{4}{9} \\ &= \frac{2}{3} \times \frac{3}{3} + \frac{4}{9} \\ &= \frac{6}{9} + \frac{4}{9} \\ &= \frac{10}{9} \\ &= 1\frac{1}{9} \text{ (Simplify)} \end{aligned}$$

$$\begin{aligned} (7) \quad & \frac{9}{12} + \frac{3}{4} \\ &= \frac{9}{12} + \frac{3}{4} \times \frac{3}{3} \\ &= \frac{9}{12} + \frac{9}{12} \\ &= \frac{18}{12} \\ &= 1\frac{6}{12} = 1\frac{1}{2} \text{ (Simplify)} \end{aligned}$$

$$\begin{aligned} (8) \quad & \frac{7}{15} + \frac{4}{5} \\ &= \frac{7}{15} + \frac{4}{5} \times \frac{3}{3} \\ &= \frac{7}{15} + \frac{12}{15} \\ &= \frac{19}{15} \\ &= 1\frac{4}{15} \text{ (Simplify)} \end{aligned}$$

$$\begin{aligned} (9) \quad & \frac{12}{25} + \frac{3}{15} \\ &= \frac{12}{25} \times \frac{3}{3} + \frac{3}{15} \times \frac{5}{5} \\ &= \frac{36}{75} + \frac{15}{75} \\ &= \frac{51}{75} \\ &= \frac{17}{25} \text{ (Simplify)} \end{aligned}$$

$$\begin{aligned} (10) \quad & \frac{15}{30} + \frac{6}{15} \\ &= \frac{15}{30} + \frac{6}{15} \times \frac{2}{2} \\ &= \frac{15}{30} + \frac{12}{30} \\ &= \frac{27}{30} \\ &= \frac{9}{10} \text{ (Simplify)} \end{aligned}$$

$$\begin{aligned} (11) \quad & \frac{15}{30} + \frac{9}{10} \\ &= \frac{15}{30} + \frac{9}{10} \times \frac{3}{3} \\ &= \frac{15}{30} + \frac{27}{30} \\ &= \frac{42}{30} \\ &= 1\frac{12}{30} = 1\frac{2}{5} \text{ (Simplify)} \end{aligned}$$

$$(12) \frac{9}{15} + \frac{1}{5}$$

$$= \frac{9}{15} + \frac{1}{5} \times \frac{3}{3}$$

$$= \frac{9}{15} + \frac{3}{15}$$

$$= \frac{12}{15} = \frac{4}{5}$$

$$(13) \frac{4}{8} + \frac{3}{16}$$

$$= \frac{4}{8} \times \frac{2}{2} + \frac{3}{16}$$

$$= \frac{8}{16} + \frac{3}{16}$$

$$= \frac{11}{16}$$

$$(14) \frac{4}{12} + \frac{2}{4}$$

$$= \frac{4}{12} + \frac{2}{4} \times \frac{3}{3}$$

$$= \frac{4}{12} + \frac{6}{12}$$

$$= \frac{10}{12} = \frac{5}{6}$$

An athlete ran a $\frac{1}{4}$ of a marathon on a Monday and $\frac{3}{8}$ on a Tuesday.

(a) What fraction of the marathon did he complete?

(b) What fraction of the marathon must still be completed?

Start with the number sentence:

(a)

$$\frac{1}{4} + \frac{3}{8}$$

$$= \frac{1}{4} \times \frac{2}{2} + \frac{3}{8}$$

$$= \frac{2}{8} + \frac{3}{8}$$

$$= \frac{5}{8}$$

(b)

$$\frac{8}{8} - \frac{5}{8}$$

$$= \frac{8}{8} - \frac{5}{8}$$

$$= \frac{3}{8}$$

Remember:

$$\frac{8}{8} = 1 \text{ marathon}$$

Exercise 8:

Date: _____

MORE ADDITION!

Add the fractions. Simplify where possible.

$$\frac{1}{3} + \frac{1}{5}$$

$$= \frac{1}{3} \times \frac{5}{5} + \frac{1}{5} \times \frac{3}{3}$$

$$= \frac{5}{15} + \frac{3}{15} \quad \text{or} \quad \frac{5+3}{15}$$

$$= \frac{8}{15}$$

$$(1) \frac{2}{3} + \frac{3}{4}$$

$$= \frac{2}{3} \times \frac{4}{4} + \frac{3}{4} \times \frac{3}{3}$$

$$= \frac{8}{12} + \frac{9}{12}$$

$$= \frac{17}{12} = 1 \frac{5}{12}$$

$$(2) \frac{3}{7} + \frac{4}{5}$$

$$= \frac{3}{7} \times \frac{5}{5} + \frac{4}{5} \times \frac{7}{7}$$

$$= \frac{15}{35} + \frac{28}{35}$$

$$= \frac{43}{35} = 1 \frac{8}{35}$$

