1. In the following grid, shade in the given fraction amount. (2 marks)

(a) [grid] $\dfrac{3}{10}$ (b) [grid] $\dfrac{5}{8}$
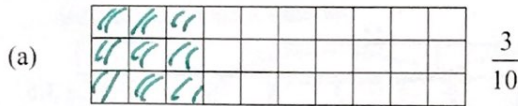
2. Write the following fractions in LOWEST TERMS. (K - 4 marks)

(a) $\dfrac{8}{10} = \dfrac{4}{5}$ (b) $\dfrac{55}{100} = \dfrac{11}{20}$ (c) $\dfrac{6}{18} = \dfrac{1}{3}$ (d) $\dfrac{9}{15} = \dfrac{2}{5}$

3. Place the following fractions in order of greatest to smallest - $\dfrac{5}{8}, \dfrac{1}{2}, \dfrac{3}{4}, \dfrac{9}{16}$ (App – 2 marks)

$\dfrac{3}{4}) \dfrac{5}{8}, \dfrac{9}{16}, \dfrac{1}{2}$ $\dfrac{10}{16}\ \dfrac{8}{16}\ \dfrac{12}{16}\ \dfrac{9}{16}$

4. Find a common denominator and evaluate the following leaving your final answer in **lowest terms**: (K – 10 marks)

(a) $\dfrac{3}{5} + \dfrac{4}{5} = \dfrac{7}{5}$

$= 1\dfrac{2}{5}$

(b) $\dfrac{1}{2} + \dfrac{5}{8} = \dfrac{4}{8} + \dfrac{5}{8}$
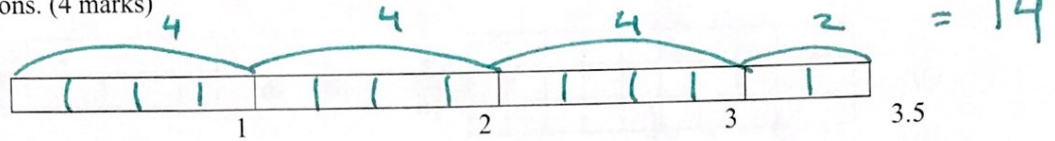
$= \dfrac{9}{8}$

$= 1\dfrac{1}{8}$

(c) $\dfrac{3}{4} - \dfrac{5}{8} = \dfrac{6}{8} - \dfrac{5}{8}$

$= \dfrac{1}{8}$

(d) $3\dfrac{1}{2} + \dfrac{3}{5} = \dfrac{7}{2} + \dfrac{3}{5}$

$= \dfrac{35}{10} + \dfrac{6}{10}$

$= \dfrac{41}{10}$

$= 4\dfrac{1}{10}$

(e) $2\dfrac{1}{4} - 1\dfrac{5}{6} = \dfrac{9}{4} - \dfrac{11}{6}$

$= \dfrac{27}{12} - \dfrac{22}{12}$

$= \dfrac{5}{12}$

5. On the strip provided, illustrate how many "quarters" fit into the entire length. **Verify** your count with calculations. (4 marks)

$3\frac{1}{2} \div \frac{1}{4}$

$$\frac{7}{2} \div \frac{1}{4} = \frac{7}{2} \times \frac{4}{1}$$
$$= \frac{28}{2} \text{ or } 14$$

6. Evaluate the following multiplication and division problems leaving your final answer in **lowest terms**: (K – 10 marks)

(a) $\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$

(b) $\frac{1}{2} \div \frac{1}{4} = \frac{1}{2} \times \frac{4}{1}$
$= \frac{4}{2}$
$= 2$

(c) $1\frac{1}{2} \times \frac{1}{3} = \frac{3}{2} \times \frac{1}{3}$
$= \frac{1}{2}$

(d) $2\frac{1}{8} \times 1\frac{3}{5} = \frac{17}{8} \times \frac{8}{5}$
$= \frac{17}{5}$
$= 3\frac{2}{5}$

(e) $2\frac{3}{4} \div \frac{3}{8} = \frac{11}{4} \div \frac{3}{8}$
$= \frac{11}{4} \times \frac{8}{3}^{2}$
$= \frac{22}{3} \text{ or } 7\frac{1}{3}$

7. Jim was making a birthday card for his friend. He wanted to put a fancy border around the edge of the card. The card dimensions are $4\frac{1}{2}$ inches wide by $6\frac{3}{8}$ inches tall. How much of the fancy border material does Jim need to go *around the entire outside* of the card? (4 marks)

fancy border   perimeter
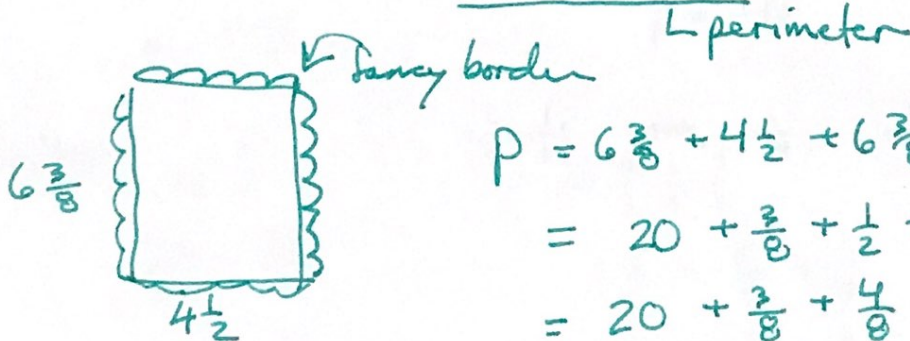
$6\frac{3}{8}$ $4\frac{1}{2}$

$$P = 6\frac{3}{8} + 4\frac{1}{2} + 6\frac{3}{8} + 4\frac{1}{2}$$
$$= 20 + \frac{3}{8} + \frac{1}{2} + \frac{3}{8} + \frac{1}{2}$$
$$= 20 + \frac{3}{8} + \frac{4}{8} + \frac{3}{8} + \frac{4}{8}$$
$$= 20 + \frac{14}{8}$$
$$= 20 + 1 + \frac{6}{8}$$
$$= 21 \, ^{3}/_{4} \, " \text{ of border}$$

Math   Task – Equations   Name: **Sol'n**

1. **Solve** each of the following equations, be sure to show your opposite operation use: (K – 9 marks)

(a) $\dfrac{7x}{7} = \dfrac{-28}{7}$

$x = -4$

(b) $\overset{-12 \quad -12}{z + 12 = 4}$

$z = -8$

(c) $\dfrac{-6b}{-6} = \dfrac{48}{-6}$

$b = -8$

(d) $\dfrac{(3)d}{3} = 5\,(3)$

$d = 15$

(e) $\overset{+13 \quad +13}{y - 13 = 0}$

$y = 13$

(f) $\overset{+0.3 \qquad +0.3}{4.7 = n - 0.3}$

$5 = n$

e) $\dfrac{33}{3} = \dfrac{3m}{3}$

$11 = m$

(f) Challenge $\overset{+k \qquad +k}{18 = 14 - k}$

$k + 18^{-18} = 14^{-18}$

$k = -4$

(g) challenge $\overset{-3a \quad -3a}{12 + 3a = 4a}$

$12 = a$

2. **Solve** the following multi-step equations. Show your work for complete marks. (13 marks)

(a) $\overset{\quad -8 \quad -8}{3n + 8 = 32}$

$\dfrac{3n}{3} = \dfrac{24}{3}$

$n = 8$

(b) $\overset{\quad -9 \quad -9}{4p + 9 = -7}$

$\dfrac{4p}{4} = \dfrac{-16}{4}$

$p = -4$

(c) Challenge $10a - 6a = 12$

$\dfrac{4a}{4} = \dfrac{12}{4}$

$a = 3$

(d) $\overset{+\frac{1}{4} \quad +\frac{1}{4}}{\dfrac{a}{2} - \dfrac{1}{4} = \dfrac{7}{8}}$

$\dfrac{a}{2} = \dfrac{7}{8} + \dfrac{1}{4}$

$\dfrac{a}{2} = \dfrac{7}{8} + \dfrac{2}{8}$

$(2)\,\dfrac{a}{2} = \dfrac{9}{8}\,(2)$

$a = \dfrac{18}{8}$ OR $2\dfrac{2}{8}$ OR $2\dfrac{1}{4}$

1. Write the following standard ratios in fraction form (2 marks)

   (a) $5:12$ $\dfrac{5}{12}$ or $\dfrac{12}{5}$ (b) $34:57$ $\dfrac{34}{57}$ or $\dfrac{57}{34}$

2. Write the following fraction ratios in standard form. (2 marks)

   (a) $\dfrac{3}{8}$ $3:8$ (b) $\dfrac{13}{7}$ $13:7$

   or

   $8:3$ or

   $7:13$

3. Determine the missing value in the following proportions (4 marks)

   (a) $5:6=15:n$ $^{(15)}\dfrac{6}{5} = \dfrac{n}{15}^{(15)}$ (b) $3:4=21:n$ $^{(21)}\dfrac{4}{3} = \dfrac{n}{21}^{(21)}$

   $\boxed{18 = n}$ $\boxed{28 = n}$

   (c) $n:8=18:24$ (d) $6.6:n=13.2:20.8$

   $^{(8)}\dfrac{n}{8} = \dfrac{18}{24}^{(8)}$ $^{(6.6)}\dfrac{n}{6.6} = \dfrac{20.8}{13.2}^{(6.6)}$

   $\boxed{n = 6}$ $\boxed{n = 10.4}$

4. Determine the missing value in the following proportions (4 marks)

   (a) $^{(40)}\dfrac{4}{5} = \dfrac{n}{40}^{(40)}$ (b) $^{(7)}\dfrac{n}{7} = \dfrac{54}{42}^{(7)}$ (c) $\dfrac{12}{7} = \dfrac{48}{n}$ $^{(48)}\dfrac{7}{12} = \dfrac{n}{48}^{(48)}$

   $\boxed{32 = n}$ $\boxed{n = 9}$ $\boxed{28 = n}$

5. A used car store has a ratio of 12 cars to 15 trucks; if the entire inventory of the used car store has the **same** ratio of cars to trucks, how many trucks are in their parking lot if they have 216 cars? (3 marks)

   $\underset{c}{12}:\underset{T}{15} = \underset{c}{216}:T$

   $(216)\dfrac{15}{12} = \dfrac{T}{216}(216)$

   $270 = T$

   ∴ there are 270 trucks on the lot.

1. Fill in the missing values. Be sure to use lowest term fractions. (K – 12 marks)

%	Fraction	Decimal
78%	$\frac{78}{100} = \frac{39}{50}$	0.78
$\frac{73}{100}$	$\frac{11}{15}$	0.73
18%	$\frac{18}{100} = \frac{9}{50}$	0.18
18.2%	$\frac{18.2}{100} = \frac{182}{1000} = \frac{91}{500}$	0.182
20%	$\frac{12}{60} = \frac{1}{5}$	0.20
0.1%	$\frac{1}{1000}$	0.001

2. Determine the desired value for the following: (App – 4 marks)

(a) 75% of 210 is?

$(210)\frac{75}{100} = \frac{n}{210}(210)$

$\boxed{157.5 = n}$

(b) 52 is 60% of what number? (careful)

Note $\longrightarrow \frac{52}{n} = \frac{60}{100}$

$(52)\frac{n}{52} = \frac{100}{60}(52)$ $\longrightarrow \boxed{86.7 = n}$

3. If 27 out of 37 dentists recommend SuperTooth toothpaste; what percentage of dentists recommend the toothpaste to patients their patients?

$\frac{27}{37} \times 100 = \%$

$72.9\% = \%$

∴ 72.9% of dentists recommend SuperTooth.

4. 75% of households have a computer. How many computers are in a town with 45,000 houses?

$(45000)\frac{75}{100} = \frac{n}{45000}(45000)$

$33750 = n$

∴ 33750 houses have a computer.