1. Give examples of numbers that are divisible by :
   a) 10 = 40, 1000, -60   b) 3 = 6, 3, -3000

2. a) What does LCM mean?   Lowest common multiple.

   b) What are multiples? 10 → 10, 20, 30, 40 ....
                           3 → 3, 6, 9, 12 ....

   c) What is the LCM of 6 and 8?
                6, 12, 18, (24), 30 ...
                8, 16, (24)

   d) What is the LCM of 5 and 7?   35
                5, 10, 15, 20, 25, 30, (35)
                7, 14, 21, 28, (35)

3. a) What does GCF mean?   Greatest common factor.

   b) What is the GCF of   16 and 24?

            16 = 16 × 1, (8) × 2, 4 × 4
            24 = 24 × 1, 12 × 2, 3 × (8), 4 × 6

   c) What is the GCF of 12 and 18?

            12 = 1 × 12, 2 × (6), 3 × 4
            18 = 1 × 18, 2 × 9, 3 × (6)

Fractions:

4. Put into lowest terms: (use GCF)

   a) $\frac{5^{\div 5}}{10_{\div 5}} = \boxed{\frac{1}{2}}$ b) $\frac{14^{\div 7}}{21_{\div 7}} = \boxed{\frac{2}{3}}$ c) $\frac{28^{\div 4}}{32_{\div 4}} = \boxed{\frac{7}{8}}$

5. Convert b/w mixed and improper :

   a) $3\frac{2}{5} = \frac{17}{5}$ b) $4\frac{1}{7} = \frac{29}{7}$ c) $2\frac{6}{11} = \frac{28}{11}$

d) $\dfrac{23}{5}^{-20} = 4\dfrac{3}{5}$ e) $\dfrac{26}{7}^{-21} = 3\dfrac{5}{7}$

6. Solve: hint = you need a common denominator to add or subtract fractions

a) $\dfrac{1}{5}\checkmark + \dfrac{3}{5}\checkmark = \boxed{\dfrac{4}{5}}$

b) $\dfrac{4^{\times 2}}{7^{\times 2}} + \dfrac{9}{14} = \dfrac{8}{14} + \dfrac{9}{14} = \dfrac{17}{14} = \boxed{1\dfrac{3}{14}}$

c) $\dfrac{6^{\times 2}}{9^{\times 2}} - \dfrac{1}{18} = \dfrac{12}{18} - \dfrac{1}{18} = \boxed{\dfrac{11}{18}}$

d) $\dfrac{5^{\times 2}}{6^{\times 2}} - \dfrac{1^{\times 3}}{4^{\times 3}} = \dfrac{10}{12} - \dfrac{3}{12} = \boxed{\dfrac{7}{12}}$

7. Solve   hint = multiply Num × Num and Den × Den. to divide, flip 2nd fraction and multiply.

a) $2\dfrac{1}{3}^{6} \times \dfrac{5}{4} = \dfrac{7}{3} \times \dfrac{5}{4} = \dfrac{35}{12}^{-24} = \boxed{2\dfrac{11}{12}}$

b) $3\dfrac{2}{5}^{15} \times \dfrac{2}{1} = \dfrac{17}{5} \times \dfrac{2}{1} = \dfrac{34}{5}^{-30} = \boxed{6\dfrac{4}{5}}$

c) $\dfrac{6}{7} \div \boxed{\dfrac{1}{2}}^{\text{Flip}} = \dfrac{6}{7} \times \dfrac{2}{1} = \dfrac{12}{7}^{-7} = \boxed{1\dfrac{5}{7}}$

d) $4\dfrac{2}{3}^{12} \div 2\dfrac{3}{4}^{8} = \dfrac{14}{3} \div \boxed{\dfrac{11}{4}}^{\text{FLIP}} = \dfrac{14}{3} \times \dfrac{4}{11} = \dfrac{56}{33}^{-33} = \boxed{1\dfrac{23}{33}}$

{day 2}

1. a) 45% means the same as $\dfrac{45}{100}$ and is 0.45

b) 6% means $\dfrac{6}{100}$ and 0.06

c) 125% means $\dfrac{125}{100}$ and 1.25

2. a) what percent is $\frac{3}{5}$? $\frac{60}{100}$ = 60%

(×20 over and under the fraction)

b) What percent is $\frac{18}{20}$? $\frac{90}{100}$ = 90%

(×5 over and under the fraction)

3. Jess ate $\frac{1}{2}$ of his grapes. Nick ate 4 of his 10 grapes. Peter ate 30% of his grapes, and Gail ate $\frac{3}{5}$ of her grapes.

(50% above $\frac{1}{2}$, 40% above the 4)

   a) Who ate the most?   b) Who ate the least?
      Gail 60%   Peter

4. What is 25% as a reduced fraction?

   25% = $\frac{25}{100}$ = $\frac{1}{4}$

5. 50% of what number is equal to 35?   70

6. What is your percent if you scored $\frac{120}{150}$ on a math test?

   $\frac{120}{150}$ = $\frac{12}{15}$ = $\frac{4}{5}$ = $\frac{80}{100}$ = 80%

   (÷100, ÷3, ×20 annotations)

Area

   Square = bh   Rectangle = bh   Parallelogram = bh
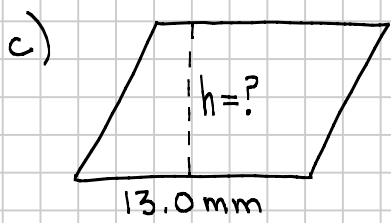
   Triangle = $\frac{bh}{2}$ or 0.5 bh

   Circle = πr^2

7. Find the area of:

a) triangle base of 10 cm and height of 10 cm:

   A = $\frac{bh}{2}$ = $\frac{(10cm)(10cm)}{2}$ = $\frac{100 cm^2}{2}$ = 50 cm²

b) circle radius of 2.2 m: 3.141592

$A = \pi r^2 = \pi (2.2m)(2.2m) = \boxed{15.2m^2}$

c)

h=?

13.0 mm

$A = 180.6mm^2$

$A = bh$

$\dfrac{180.6mm^2}{13.0\,mm} = 13.8\overset{|}{9}230$

$\boxed{13.9\,mm}$

8. Solve:

a) $4 + (-4) = 0$ b) $-17 + 8 = -9$

c) $-4 + (-14) = -18$ d) $9 = (-4) = 13$

e) $\underbrace{15 + (-10)} + 3 - 5 = 3$ f) $-7 = (-13) + (-5) =$

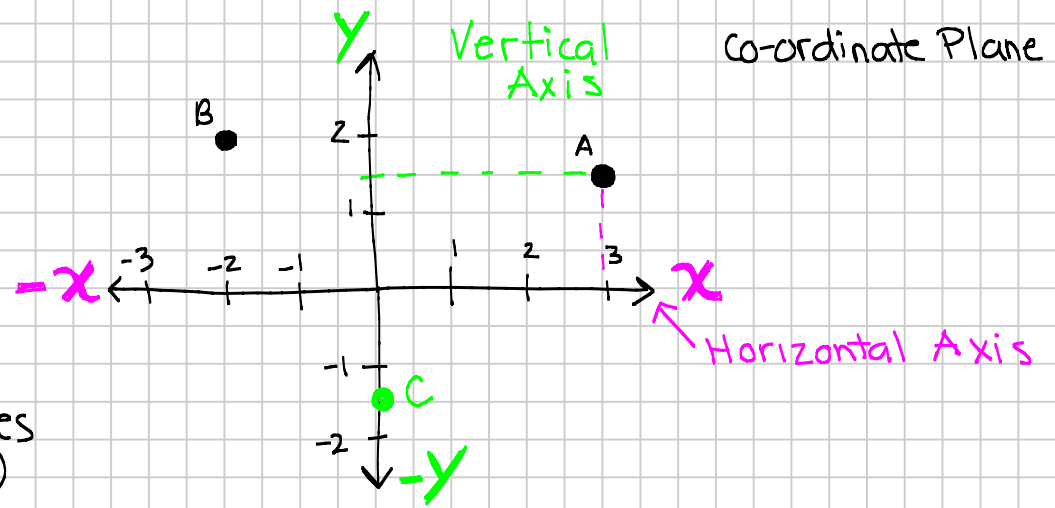$\underbrace{5 + 3 - 5}_{8 - 5}$ $6 + (-5) = 1$

9. The temperature at 5am was $-14°C$. By 5pm it had risen to $8°C$. What is the difference in temp?

$-14 \xrightarrow{0} +8$

$14 + 8 = 22°$

{day 3}

Graphing

Co-ordinates
(x, y)

Vertical Axis   Co-ordinate Plane

Horizontal Axis

Point A $(3, 1.5)$ B$(-2, 2)$ draw C$(0, -1.5)$

1. If Point M is at $(3,3)$, and is translated 1 unit right and 3 units left, where is located?

$(3, 3) \longrightarrow (1, 3)$

Patterns & Equations

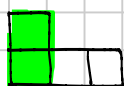2. Use the following to solve: (T = tiles, N = Fig.#)
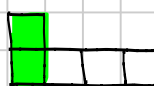
Figure 1   Figure 2   Figure 3

a) For each new _figure_ , _1_ more tile is _added_.

b) Complete the table: c) Write the equation:

N Fig #	T tiles
1 →	3
2 →	4
3 →	5
4	6

$+1$
$+1$
$+1$

$$T = N + 2$$

3. Solve (*hint: do the opposite of what you see!)

a) $2x = 16$
$\div 2 \qquad \div 2$
$x = 8$
check:
$2x = 16$
$2(8) = 16 \checkmark$

b) $3m = -21$
$\div 3 \qquad \div 3$
$m = -7$

$3m = -21$
$3(-7) = -21 \checkmark$

c) $-45 = -9x$
$\div -9 \qquad \div -9$
$5 = x$

$-45 = -9x$
$-45 = -9(5)$

d) $x + 7 = 10$
$-7 \qquad -7$
$x = 3$

$x + 7 = 10$
$3 + 7 = 10 \checkmark$

e) $d - 12 = -4$
$+12 \qquad +12$
$d = 8$

$d - 12 = -4$
$8 - 12 = -4 \checkmark$

f) $2x + 3 = 15$
$-3 \qquad -3$
$2x = 12$
$\div 2 \qquad \div 2$
$x = 6$
$2x + 3 = 15$
$2(6) + 3$
$12 + 3 = 15 \checkmark$