

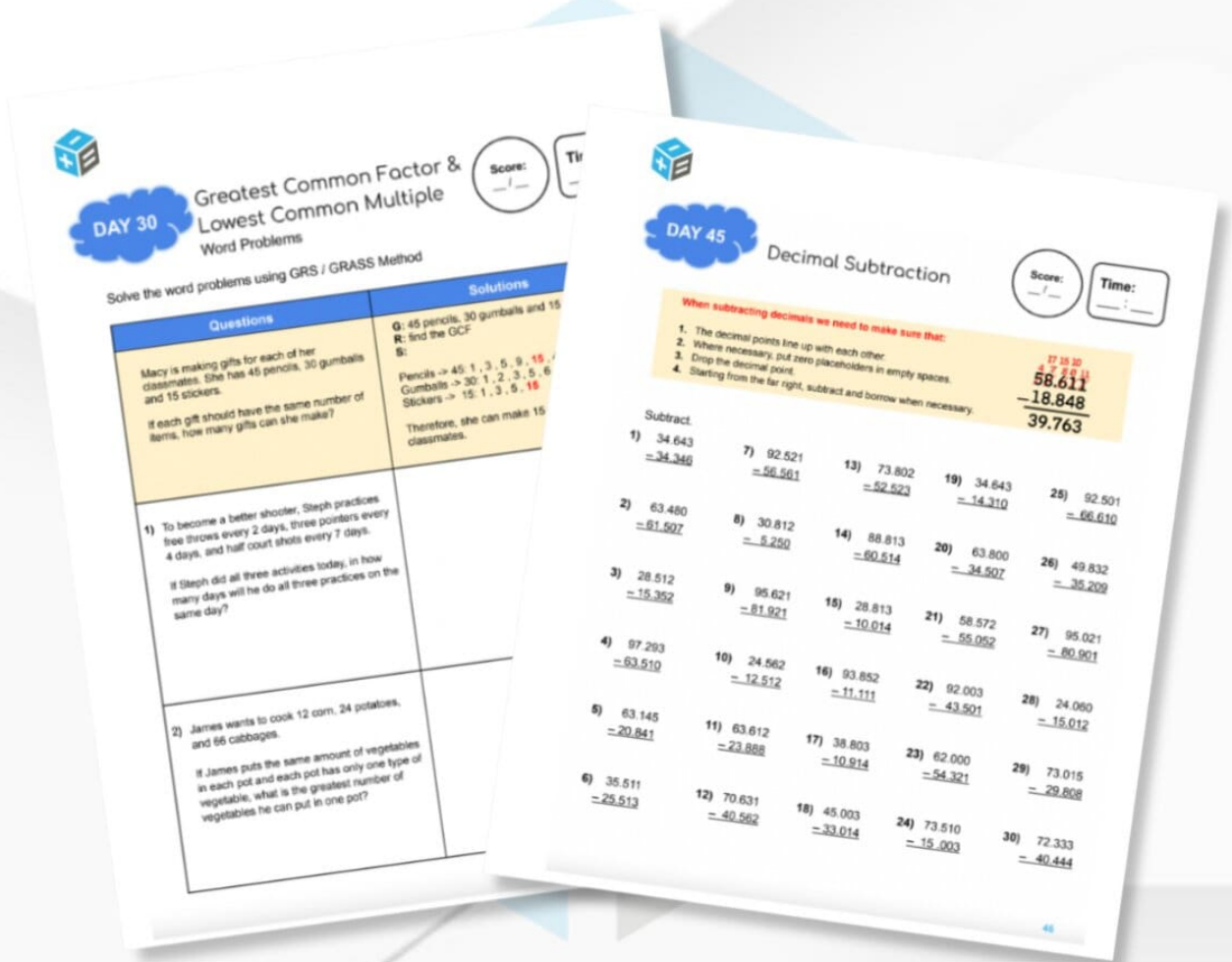


MATH PROJECT

Empowering minds

Student's Full Name: _____

Submit these worksheets for FREE grading and feedback by emailing admin@mathproject.ca. Students must remember to show all their steps as well as the final answer. Calculators are not allowed. Make sure to fill out the information at the bottom of this page and submit the coverpage along with the completed worksheets to ensure your work gets graded!



Enclosed are hand selected worksheets from our middle school curriculum. These worksheets are intended for students in Grade 6 to Grade 8 to prepare them for success in mathematics!

Parent's Full Name: _____

Student's Grade Level: _____ City/Province: _____

Parent Phone: _____ Parent Email: _____

Step 1: Change the mixed fraction into an improper fraction.

Step 2: Find the reciprocal of the second fraction, and change the division to multiplication.

Step 3: If possible cross reduce, then multiply the fractions.

$$\begin{aligned} & \frac{1}{3} \div 3\frac{3}{5} \\ &= \frac{1}{3} \div \frac{18}{5} \\ &= \frac{1}{3} \times \frac{5}{18} \\ &= \frac{5}{54} \end{aligned}$$

Divide and cross reduce where possible.

1) $\frac{1}{18} \div 1\frac{3}{7}$

6) $3\frac{9}{10} \div \frac{3}{16}$

11) $\frac{2}{3} \div 1\frac{1}{2}$

2) $2\frac{8}{10} \div \frac{2}{5}$

7) $\frac{1}{6} \div 6\frac{12}{16}$

12) $10\frac{2}{6} \div \frac{1}{3}$

3) $7\frac{1}{6} \div \frac{3}{5}$

8) $\frac{1}{2} \div 1\frac{5}{8}$

13) $9\frac{7}{15} \div \frac{1}{2}$

4) $\frac{15}{16} \div 1\frac{2}{8}$

9) $2\frac{1}{2} \div \frac{1}{4}$

14) $2\frac{8}{15} \div \frac{2}{4}$

5) $\frac{15}{20} \div 2\frac{1}{5}$

10) $3\frac{3}{4} \div \frac{1}{6}$

15) $4\frac{15}{20} \div \frac{1}{4}$



GCF & LCM Word Problems

Score:
_ / _

Time:
_ : _

Solve the word problems using GRS / GRASS Method

Questions	Solutions
<p>Macy is making gifts for each of her classmates. She has 45 pencils, 30 gumballs and 15 stickers.</p> <p>If each gift should have the same number of items, how many gifts can she make?</p>	<p>G: 45 pencils, 30 gumballs and 15 stickers R: find the GCF S:</p> <p>Pencils -> 45: 1, 3, 5, 9, 15, 45 Gumballs -> 30: 1, 2, 3, 5, 6, 10, 15, 30 Stickers -> 15: 1, 3, 5, 15</p> <p>Therefore, she can make 15 gifts for her classmates.</p>
<p>1) To become a better shooter, Steph practices free throws every 2 days, three pointers every 4 days, and half court shots every 7 days.</p> <p>If Steph did all three activities today, in how many days will he do all three practices on the same day?</p>	
<p>2) James wants to cook 12 corn, 24 potatoes, and 66 cabbages.</p> <p>If James puts the same amount of vegetables in each pot and each pot has only one type of vegetable, what is the greatest number of vegetables he can put in one pot?</p>	

<p>3) Nate needs to ship 16 sports games, 20 platform games, and 10 puzzle games. He can pack only one type of game in each box and he must pack the same number of games in each box.</p> <p>What is the greatest number of games Nate can pack in each box?</p>	
<p>4) Knives are sold in packages of 3 and forks are sold in packages of 5.</p> <p>If you want to have the same number of each item, what is the least number of packages of each you need to buy?</p>	
<p>5) Taco day occurs every 14 days, if the last taco day occurred on a tuesday.</p> <p>How many days will until taco day occurs again on a Tuesday?</p>	
<p>6) A chef is preparing lunch. There are 9 loaves of bread and 18 cabbages.</p> <p>If the chef wants all the dishes to be identical, then what is the greatest number of dishes that the chef serves?</p>	

$$2\frac{5}{6} - \frac{1 \times 2}{3 \times 2}$$

← Let's leave it as mixed fractions and do a common denominator.

$$= 2\frac{5}{6} - \frac{2}{6}$$

← Subtract the whole numbers and then subtract the fractions.

$$= 2\frac{\cancel{3}^1}{\cancel{6}_2}$$

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

← Reduce if necessary.

Subtract the fractions.

1) $3\frac{3}{15} - 1\frac{4}{9}$

7) $3\frac{4}{6} - 1\frac{1}{5}$

13) $3\frac{3}{5} - 2\frac{4}{11}$

19) $10\frac{5}{6} - 5\frac{1}{4}$

2) $3\frac{1}{2} - 1\frac{10}{11}$

8) $2\frac{7}{12} - 1\frac{4}{20}$

14) $5\frac{1}{2} - 3\frac{1}{15}$

20) $3\frac{7}{10} - 1\frac{4}{11}$

3) $3\frac{2}{11} - 1\frac{3}{4}$

9) $5\frac{5}{11} - 3\frac{1}{4}$

15) $2\frac{2}{12} - 1\frac{3}{4}$

21) $3\frac{2}{13} - 2\frac{3}{4}$

4) $3\frac{2}{10} - 1\frac{2}{16}$

10) $3\frac{2}{10} - 1\frac{2}{16}$

16) $11\frac{3}{10} - 6\frac{5}{6}$

22) $9\frac{9}{10} - 4\frac{2}{12}$

5) $8\frac{4}{8} - 1\frac{6}{10}$

11) $8\frac{1}{3} - 1\frac{6}{7}$

17) $1\frac{3}{8} - 1\frac{1}{10}$

23) $4\frac{2}{7} - 3\frac{6}{11}$

6) $4\frac{8}{21} - 1\frac{8}{9}$

12) $4\frac{6}{21} - 2\frac{6}{7}$

18) $5\frac{11}{20} - 4\frac{3}{10}$

24) $10\frac{3}{14} - 5\frac{6}{7}$

When subtracting decimals we need to make sure that:

1. The decimal points line up with each other.
2. Where necessary, put zero placeholders in empty spaces.
3. Drop the decimal point.
4. Starting from the far right, subtract and borrow when necessary.

$$\begin{array}{r}
 17 \ 15 \ 10 \\
 4 \ 7 \ 8 \ 11 \\
 58.611 \\
 - 18.848 \\
 \hline
 39.763
 \end{array}$$

Subtract.

$$\begin{array}{r}
 1) \ 34.643 \\
 - 34.346 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 7) \ 92.521 \\
 - 56.561 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 13) \ 73.802 \\
 - 52.523 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 19) \ 34.643 \\
 - 14.310 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 25) \ 92.501 \\
 - 66.610 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 2) \ 63.480 \\
 - 61.507 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 8) \ 30.812 \\
 - 5.250 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 14) \ 88.813 \\
 - 60.514 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 20) \ 63.800 \\
 - 34.507 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 26) \ 49.832 \\
 - 35.209 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 3) \ 28.512 \\
 - 15.352 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 9) \ 95.621 \\
 - 81.921 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 15) \ 28.813 \\
 - 10.014 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 21) \ 58.572 \\
 - 55.052 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 27) \ 95.021 \\
 - 80.901 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 4) \ 97.293 \\
 - 63.510 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 10) \ 24.562 \\
 - 12.512 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 16) \ 93.852 \\
 - 11.111 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 22) \ 92.003 \\
 - 43.501 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 28) \ 24.060 \\
 - 15.012 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 5) \ 63.145 \\
 - 20.841 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 11) \ 63.612 \\
 - 23.888 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 17) \ 38.803 \\
 - 10.914 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 23) \ 62.000 \\
 - 54.321 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 29) \ 73.015 \\
 - 29.808 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 6) \ 35.511 \\
 - 25.513 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 12) \ 70.631 \\
 - 40.562 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 18) \ 45.003 \\
 - 33.014 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 24) \ 73.510 \\
 - 15.003 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 30) \ 72.333 \\
 - 40.444 \\
 \hline
 \end{array}$$



Decimal Multiplication

Score:
_ / _

Time:
_ : _

Multiply.

$$\begin{array}{r} 1) \quad 53.560 \\ \quad \times \underline{.643} \\ \quad 160680 \\ \quad 2142400 \\ + 32136000 \\ \hline 34.439080 \end{array}$$

$$5) \quad 69.442 \\ \quad \times \underline{.471}$$

$$9) \quad 48.578 \\ \quad \times \underline{.842}$$

$$13) \quad 81.081 \\ \quad \times \underline{1.234}$$

$$2) \quad 64.246 \\ \quad \times \underline{8.756}$$

$$6) \quad 62.223 \\ \quad \times \underline{.852}$$

$$10) \quad 21.742 \\ \quad \times \underline{.86}$$

$$14) \quad 59.301 \\ \quad \times \underline{4.08}$$

$$3) \quad 13.277 \\ \quad \times \underline{6.251}$$

$$7) \quad 51.537 \\ \quad \times \underline{.361}$$

$$11) \quad 40.154 \\ \quad \times \underline{.11}$$

$$15) \quad 62.931 \\ \quad \times \underline{4.368}$$

$$4) \quad 20.742 \\ \quad \times \underline{.357}$$

$$8) \quad 47.975 \\ \quad \times \underline{.462}$$

$$12) \quad 37.124 \\ \quad \times \underline{6.2}$$

$$16) \quad 62.931 \\ \quad \times \underline{4.68}$$



Decimal Division

Score:
_ / _

Time:
_ : _

Remember the process:

- Place the decimal point in the quotient.
- Long Division
- If necessary, write zeros until you reach remainder 0 or the necessary decimal places.

$$\begin{array}{r} 22.33 \\ 25 \overline{) 558.25} \\ \underline{-50} \\ 58 \\ \underline{-50} \\ 82 \\ \underline{-75} \\ 75 \\ \underline{-75} \\ 0 \end{array}$$

Divide to 2 decimal places.

1) $53 \overline{) 230.20}$ 5) $52 \overline{) 187.72}$ 9) $24 \overline{) 120.00}$ 13) $31 \overline{) 384.54}$ 17) $82 \overline{) 333.74}$

2) $10 \overline{) 50.00}$ 6) $43 \overline{) 277.35}$ 10) $26 \overline{) 192.14}$ 14) $42 \overline{) 446.88}$ 18) $63 \overline{) 481.95}$

3) $16 \overline{) 84.32}$ 7) $29 \overline{) 115.71}$ 11) $90 \overline{) 333.9}$ 15) $11 \overline{) 254.10}$ 19) $35 \overline{) 260.05}$

4) $18 \overline{) 66.42}$ 8) $14 \overline{) 136.92}$ 12) $76 \overline{) 236.92}$ 16) $52 \overline{) 270.4}$ 20) $92 \overline{) 846.40}$



Order of Operations BEDMAS

Score:
_ / _

Time:
_ : _

Remember

Step 1: Parenthesis ()	Solve all problems in parenthesis first
Step 2: Exponents ^{2,3,4}	Next solve any numbers that have exponents
Step 3: Multiply or Divide x , ÷	Then solve any multiplication or division problems (from left to right)
Step 4: Add or Subtract + , -	Finally solve any addition or subtraction problems (from left to right)

Solve the following problems using the order of operations.

1) $24 \div 3 + (2 \times 8) \times 4 + 2$

6) $(24 \div 4) \div 3 + (10 - 4) \times 4$

2) $15 - 3 + 8 + 3 \times (28 \div 4)$

7) $54 \div 9 + 24 - 10 \div 2$

3) $(18 - 8) \times 8 + 5 + 56 - 2$

8) $9 \times 3 + 80 \div 8$

4) $13 - 6 + 6 \times 5 + 50 \div 5$

9) $90 \div 15 + (9^2 - 13^2)$

5) $4 \times 5 \div (16 + 4) - 45 \div 9$

10) $(9 - 23)^2 + 78 \div 2 (15 - 9)$

Step 1: Isolate for x by multiplying by (-12) to both sides. The opposite of $\div (-12)$ is $\times(-12)$.

Step 2: Simplify/ evaluate the right side to get the final answer.

$$y \div (-12) = 10$$

$$\times(-12) \quad \times(-12)$$

$$x = 10(-12)$$

$$x = -120$$

Solve for the unknown variable.

1) $157n = 314$

8) $\frac{s}{12} = 14$

15) $-2n = 84$

22) $\frac{s}{14} = -14$

2) $N \times 18 = 144$

9) $s(12) = 144$

16) $16x = 32$

23) $s \times (12) = -144$

3) $30s = 1800$

10) $s \times 16 = 208$

17) $4s = -36$

24) $\frac{s}{8} = 12$

4) $6s = 72$

11) $255 \div s = 15$

18) $s \times (-5) = -75$

25) $-255 \div s = 5$

5) $14s = 224$

12) $s \div 7 = 12$

19) $\frac{s}{-9} = -10$

26) $s \div (-4) = 55$

6) $\frac{112}{s} = 2$

13) $s \div 12 = 18$

20) $\frac{-45}{s} = 3$

27) $m \times 12 = 156$

7) $\frac{129}{s} = 43$

14) $15s = 15$

21) $22p = 462$

28) $-15s = 15$



Percentages as Whole Numbers

Score:
_ / _

Time:
_ : _

$$110\% \text{ of } 50 \Rightarrow 1.10 \times 50$$

1.10 ← 2 decimal place

$$\begin{array}{r} \underline{\times 50} \\ 000 \\ + 5500 \end{array}$$

5500 ← move 2 decimal place

Therefore, 110% of 50 is 55

Evaluate.

- | | | | |
|----------------|-----------------|----------------|-----------------|
| 1) 150% of 124 | 6) 114% of 160 | 11) 86% of 75 | 16) 120% of 114 |
| 2) 120% of 36 | 7) 25% of 80 | 12) 25% of 25 | 17) 120% of 30 |
| 3) 140% of 58 | 8) 86% of 200 | 13) 75% of 8 | 18) 110% of 84 |
| 4) 200% of 96 | 9) 150% of 28 | 14) 150% of 66 | 19) 136% of 24 |
| 5) 180% of 12 | 10) 140% of 120 | 15) 120% of 74 | 20) 300% of 2 |



Percentages Increases

Score:
_ / _

Time:
_ : _

To determine the new amount:	To determine the % increase:												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Original Amount</th> <th>% Increase</th> <th>New Amount</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">14</td> <td style="text-align: center;">20%</td> <td style="text-align: center;">16.8</td> </tr> </tbody> </table> <p style="text-align: center; color: red;">Add 100% onto a percent increase</p> <p style="text-align: center; color: red;">$20\% + 100\% = 120\%$</p> <p>Now:</p> <p style="text-align: center; color: red;">$14 \times 120\% \xrightarrow{\text{turn into a decimal}} 14 \times 1.2 = 16.8$</p>	Original Amount	% Increase	New Amount	14	20%	16.8	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Original Amount</th> <th>% Increase</th> <th>New Amount</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">250%</td> <td style="text-align: center;">14</td> </tr> </tbody> </table> <p style="text-align: center; color: red;">$\frac{\text{New Amount}}{\text{Original Amount}} \rightarrow \frac{14}{4} = 3.5 \rightarrow 350\%$</p> <p style="text-align: center; color: red;">↑ turn into a percent</p> <p>Since it is a % increase:</p> <p style="text-align: center; color: red;">$\text{--- \%} - 100\% \xrightarrow{\text{---}} 350 - 100 = 250\%$</p> <p>Therefore, there was a 250% increase.</p>	Original Amount	% Increase	New Amount	4	250%	14
Original Amount	% Increase	New Amount											
14	20%	16.8											
Original Amount	% Increase	New Amount											
4	250%	14											

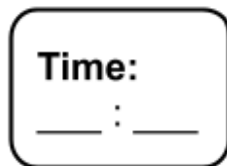
Complete the following table.

Question	Original Amount	% increase	New amount	Question	Original Amount	% increase	New amount
1)	26	75%	45.5	9)	8	20%	9.6
2)	4	20%		10)	36		54
3)	2	50%		11)	4		16
4)	1	90%		12)	30		90
5)	8	1%		13)	120		210
6)	40	2%		14)	20		25
7)	70	100%		15)	100		125
8)	21	60%		16)	150		495



Percentages

Word Problems



Use the GRS / GRASS Method to answer the following word problems

Questions	Solutions
<p>1) 40% of 40 is ...</p>	
<p>2) In a football team of 50 players, 40% of them play defense and 5 of the players on defense are 24 years old.</p> <p>Of the players on defense, the fraction who are 24 is ...</p>	
<p>3) In the MVP nomination, James received 256 votes, Kevin received 180 votes and Steph received 544 votes.</p> <p>If only 70% of those eligible to vote did so, what is the number of people eligible to vote?</p>	
<p>4) Antetta ordered 50 pieces of chicken nuggets costing \$1.45 each.</p> <p>If the tax at the final price was 14%, how much did he pay in total?</p>	
<p>5) Ismael determined that 12.5% of the kids in his grade have food allergies.</p> <p>If there are 8 kids with food allergies, how many kids are in his grade?</p>	



Negative Exponents

Score:
_ / _

Time:
_ : _

What to do when the exponent is negative?

To solve powers that have negative exponents we need to make the exponent positive, which is done by equating it to 1 divided by the number to the positive exponent.

What is actually happening when we do this is that we are switching the numerator and denominator.

$$3^3$$
$$\frac{3^3}{1} = \frac{1}{3^3}$$
$$= \frac{1}{27}$$

• Remember that whole numbers have a denominator of 1

• To Evaluate negative exponents we need to make it positive

• Flip it and make the exponent positive

• Evaluate:
 $3^3 = 3 \times 3 \times 3$
 $= 27$

Part A:

Rewrite each power so that the exponent is positive.

1) 5^{-1} 3) 4^{-12} 5) 9^{-2} 7) 8^{-1} 9) 2000^{-4}

2) 6^{-4} 4) 10^{-4} 6) 15^{-3} 8) 125^{-5} 10) 13^{-4}

Part B:

Rewrite the following so that the exponent is negative.

11) $\frac{1}{5^3}$ 13) $\frac{1}{10^6}$ 15) $\frac{1}{12^4}$ 17) $\frac{1}{25^2}$ 19) $\frac{1}{100^6}$

12) $\frac{1}{6^{14}}$ 14) $\frac{1}{1^{24}}$ 16) $\frac{1}{6^{10}}$ 18) $\frac{1}{10^{14}}$ 20) $\frac{1}{11^9}$

Ratio	Rate	Unit Rate
<p>A comparison between two or more quantities that have the same units.</p> <p>_____ : _____</p> <p>Reduce the ratio and never write the units.</p>	<p>A comparison between two or more quantities that have different units.</p> <p>Reduce the ratio and write the units.</p>	<p>A ratio that compares two different quantities by stating how many of the first quantity compare to ONE unit of the second quantity.</p> <p>For instance: 100 km/hour or \$12/kg.</p>
<p>Example: There are 16 boys and 14 girls in the math class.</p> <p>The ratio would be expressed as</p> <p>Boys : Girls 16 : 14 ← Divide by 2 8 : 7 ← Reduced Ratio</p>	<p>Example: To get to grandma's house we have to drive 250 km for 3 hours.</p> <p>The rate would be express as</p> <p>$\frac{250 \text{ km}}{3 \text{ hours}}$ OR 250 km : 3 hours</p>	<p>Example: Jon paid \$45 for 9 hotdogs.</p> <p>The ratio would be expressed as</p> <p>\$ 45 : 9 Hotdogs ← Divide by 9 \$ 5 : 1 Hotdog ← Reduced Ratio</p> <p>The unit rate is \$ 5 per hotdog.</p>

Complete the table by expressing each phrase as a rate and unit rate.

Phrase	Rate	Unit Rate
1) 21 pineapples for \$63		
2) 405 points for 44 games won		
3) 3909 points made over 710 shot attempts		
4) 14 inches of water in 4 hours		
5) 70 miles per 2 hour		
6) 3 monitors cost 240 pesos		
7) 18 phones cost \$16400		
8) \$40 for 20 wings		
9) 26 years in prison for 5 banks robbed		
10) 7 pencils for 20 dollars		



Algebraic Expressions

Score:
_ / _

Time:
_ : _

1. Solve the following equations:

- a) $x + \frac{x}{5} = 12$
- b) $\frac{2}{5} = 2(3x - 7)$
- c) $\frac{1}{2}a - 2 = \frac{3}{5}a + 4$
- d) $m + 2 = \frac{2-m}{3} - 2$
- e) $\frac{5x}{2} = \frac{4}{3} + 2x$
- f) $\frac{2x-1}{5} + \frac{x+3}{8} = 0$
- g) $\frac{2x+3}{4} - \frac{x-5}{6} = 0$

2. Solve for the following variables:

- a) If $V = \frac{1}{3}Ah$, find V when $A = 43$ and $h = 6$
- b) If $F = \frac{9c}{5} + 32$, find F when $c = 30$
- c) If $S = 4\pi r^2$, find S when $r = \frac{21}{2}$
- d) If $t = \frac{v-u}{a}$, find a when $t = 1$, $u = \frac{5}{3}$, and $v = \frac{7}{2}$

3. How many grams are there in 5 kg? How many grams are there in x kg?

4. What is the cost of 6 magazines at \$4 each? What is the cost of p magazines at \$4 each? Find also the cost of p magazines at \$q each.

5. A shopkeeper buys an armchair for \$a and then sells it at a profit of \$b. What is the selling price of the armchair?

6. Mrs Jones's age is equal to the sum of the ages of her two daughters. If the younger daughter is x years old and the elder is 4 years older, how old is Mrs Jones?

7. Three wallets and two handbags cost \$450 and a handbag costs twice as much as a wallet. If a wallet costs \$x, form an equation in x.

8. In each of the following, let x denote the unknown. Derive an equation involving x:

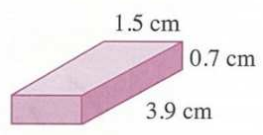
- (a) When a certain number is increased by 7, the result is 18.
- (b) When a number is decreased by 2 and the result multiplied by 3, the final result is 24.
- (c) When 5 is subtracted from a certain number and the result multiplied by 7, the final result is 63.
- (d) When a certain number is subtracted from 24 and the result divided by 5, the final result is 4.
- (e) The sum of three consecutive numbers is 63.
- (f) One number is bigger than the other number by 3 and the sum of these two numbers is 43.
- (g) Six times of a certain number is 16 more than twice the number.
- (h) The length of a rectangle is 5 m more than its width and the perimeter of the rectangle is 32 m.
- (i) The length of a rectangle is twice its width and the perimeter is 54 m.

9. Mooncakes with double egg yolks cost 50 cents more than those with only a single egg yolk. Mrs Tan bought 6 mooncakes with double egg yolks and 5 with only a single egg yolk. If she paid \$36 for the 11 mooncakes, how much does a mooncake with double egg yolks cost?

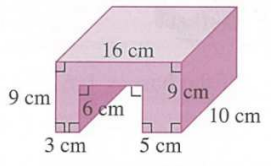
10. Joe and Ahmad had 80 marbles altogether. the result is 45. Find the number. Ahmad has 4 times as many marbles as Joe. How many marbles does each boy have?

1. Find the volume and surface area of the following shapes:

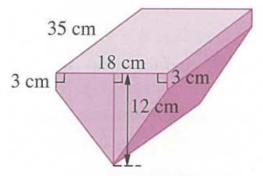
a)



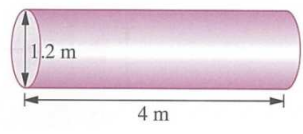
b) (just find volume)



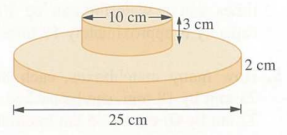
c) (just find volume)



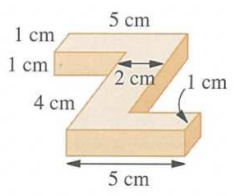
d)



e)



f)



2. A rectangular tank measures 4 m long, 2 m wide and 4.8 m high. Initially it is half filled with water.

Find the depth of water in the tank after 4000 litres more of water are added to it.

3. A trough, in the form of an open rectangular box, is 1.85 m long, 45 cm wide and 28 cm deep externally. If the trough is made of wood 2.5 cm thick, find, in cubic centimetres, the volume of wood required.

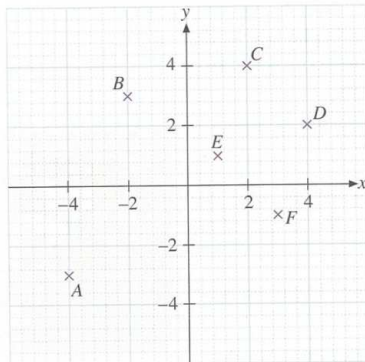
4. Assuming that a \$1 coin is cylindrical with a diameter of 2.24 cm and a thickness of 2.5 mm, find the volume of the coin, giving your answer in cm³. If the density of the coin is 5.4 g/cm³, find its mass, correct to 2 decimal places.

5. Ten open cylindrical containers are to be painted on the outside, including the base. Each container has a radius of 30 cm and a height of 28 cm. Given that 150 g of paint is needed to paint an area of 1 m², find the amount of paint required to paint the ten cylinders. Give your answer in kg.

6. The Singapore Expo has an exhibition area of 60 000 m², making it the largest exhibition centre in the region. If the average height of the exhibition centre is 4.85 m, find the volume of the air in the centre. If the density of air is approximately 1.26 kg/m³, find the mass of the air contained in the centre.

7. An open water tank with length 20 cm and width 15 cm holds 4.8 litres of water. Calculate the height of the water level in the tank and the total surface area of the cuboid in contact with the water.

1. Write down the coordinates of the points in the plot:

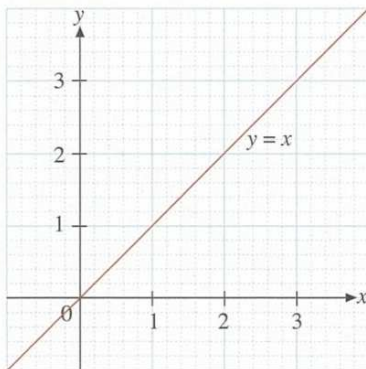


2. The vertices of a right-angled triangle are A(1, 0), B(7, 0) and C(1, 8). Plot the points A, B and C. Hence, find the area of AABC.

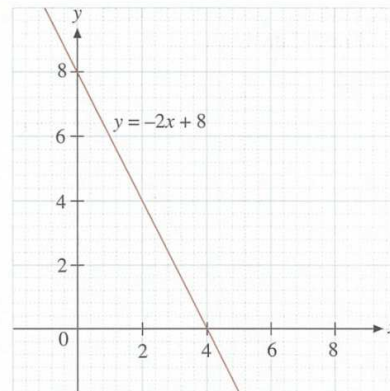
3. Given a function $y = 4x + 5$, find the values of y when
(a) $x = -2$, (b) $x = 3$, (c) $x = 7$.

4. Draw the graph of each of the following linear functions.
(a) $y = 3x + 4$ (b) $y = 2x - 7$
(c) $y = -x + 5$ (d) $y = -4x - 2$

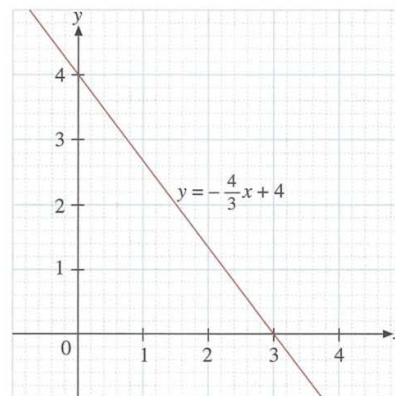
5. Find the gradient of each of the following linear functions.
a)



b)



c)



6. The fuel tank of Mr Ong's car is 45 litres. He fills up the fuel tank in Singapore before heading to Penang. The fuel consumption of his car is approximately 10.8 km/litre, find the amount of fuel left (in litres) in the fuel tank after he has traveled

(a) 48 1cm, (b) 245 km.

Express the amount of fuel (y litres) that was left in the fuel tank after he has traveled x km. If $x = -25$, what is the value of y ? What will the value of y be when $x = 558$? Can you explain the significance of the values you get from the above.

