

Unit Review

Unit 1

1. a) Circle the numbers that are divisible by 4.

(312) 1407 (204) 3441 (640) 763

- b) How do you know if a number is divisible by 4?

The last two digits of the number are divisible by 4.

2. a) Circle the numbers that are divisible by 2 and by 3.

(606) (330) 501 (2466) (492) (9342)

- b) What other number are the circled numbers in part a divisible by? 6

How do you know?

Since $2 \times 3 = 6$, any number divisible by 2 and by 3 will also be divisible by 6

3. Which numbers below are divisible by 8? Divisible by 5?

How do you know?

- a) 244: Not divisible by 8, I divided to check; not divisible by 5 because the ones digit is not 0 or 5

- b) 160: Divisible by 8; divisible by 5 because the ones digit is 0

- c) 315: Not divisible by 8; divisible by 5 because the ones digit is 5

- d) 608: Divisible by 8; not divisible by 5

4. Use your answers from question 3 to help you list all the factors of each number.

- a) 244: 1, 2, 4, 61, 122, 244

- b) 160: 1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 80, 160

- c) 315: 1, 3, 5, 7, 9, 15, 21, 35, 45, 63, 105, 315

- d) 608: 1, 2, 4, 8, 16, 19, 32, 38, 76, 152, 304, 608

1.38 5. Write an algebraic expression for each phrase. Use the variable n .

a) Three times a number: $3n$

b) Five less than a number: $n - 5$

c) Twenty divided by a number: $\frac{20}{n}$

d) Seven more than four times a number: $4n + 7$

6. Evaluate each expression for $n = 5$.

a) $n + 7 = 12$

b) $10 - n = 5$

c) $2n + 3 = 13$

7. a) Zadi climbed four sets of stairs every minute for the Charity Stair Climb Fundraiser. Complete this table. The pattern continues.

Time (minutes)	1	2	3	4	5	6	7	8
Sets of stairs climbed	4	8	12	16	20	24	28	32

b) How many sets of stairs will Zadi have climbed after 15 minutes? 60

8. Write a relation for the pattern rule for each number pattern.

a) 3, 6, 9, 12, 15, ... $3n$ is related to n

b) 8, 9, 10, 11, 12, ... $n + 7$ is related to n

9. Complete each table.

How is each Output number related to its Input number?

a)

Input n	Output $3n + 5$
1	8
2	11
3	14
4	17
5	20

Each Output number is 5 more than 3 times its Input number.

b)

Input n	Output $5n + 3$
1	8
2	13
3	18
4	23
5	28

Each Output number is 3 more than 5 times its Input number.

c)

Input n	Output $5n - 3$
1	2
2	7
3	12
4	17
5	22

Each Output number is 3 less than 5 times its Input number.

10. Use algebra. Write a relation for each table.

a)

Input m	Output
1	9
2	11
3	13
4	15
5	17

$2m + 7$ is related to m

b)

Input m	Output
1	9
2	16
3	23
4	30
5	37

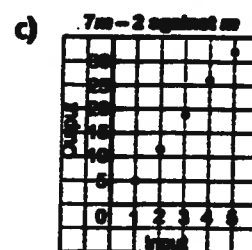
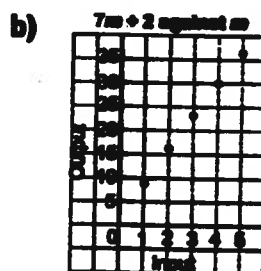
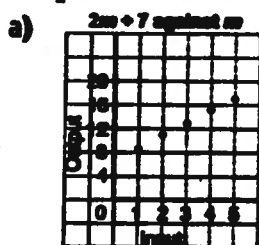
$7m + 2$ is related to m

c)

Input m	Output
1	5
2	12
3	19
4	26
5	33

$7m - 2$ is related to m

11. Graph each relation in question 10.



12. Write an equation for each sentence.

Let n represent the number.

a) Four times a number is sixteen. $4n = 16$

b) Eight subtracted from four times a number is sixteen. $4n - 8 = 16$

c) Twelve more than four times a number is sixteen. $4n + 12 = 16$

d) Thirty-two minus four times a number is sixteen. $32 - 4n = 16$

13. Write an equation for each sentence. Let n represent the number.

a) Four less than a number is sixteen. $n - 4 = 16$

b) A number divided by five is ten. $\frac{n}{5} = 10$

c) Five more than three times a number is eleven. $3n + 5 = 11$

14. Robin walked twice around a lake, plus an extra 3 km.

Her pedometer showed that she had walked a total of 19 km.

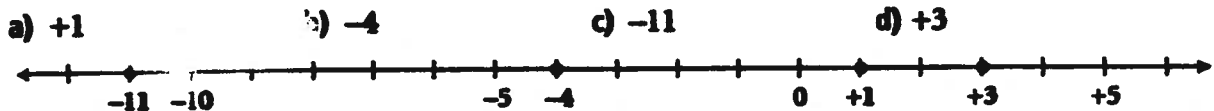
Write then solve an equation to find how far it is around the lake.

$2n + 3 = 19$; $n = 8$; it is 8 km around the lake

Unit Review

Unit 2

1. Show each integer on the number line.



2. a) Place either $>$ or $<$ between the integers.

i) $+1$ $<$ -2

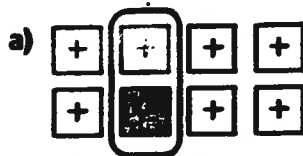
ii) -8 $<$ 0

iii) -11 $>$ -18

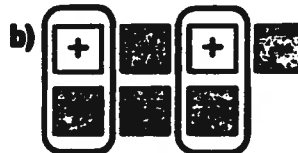
b) Order all the integers in part a from least to greatest.

-18 -11 -8 -2 0 +1

3. Write the integer modelled by each set of tiles.



+6



-3

4. One way to model -2 is shown.

Draw tiles to model -2 three more ways.

Sample Answers:



HINT

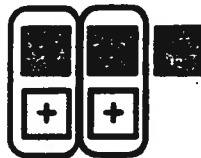
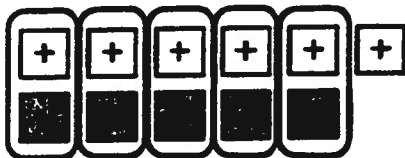
Adding or removing zero pairs does not change the integer being modelled.



5. Use tiles to add.

a) $(+6) + (-5) =$ +1

b) $(-3) + (+2) =$ -1



6. What type of integer do you get when you add two negative integers?

Explain how you know.

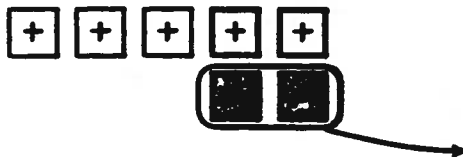
I get a negative integer.

On a number line, when I add two negative integers, I move to the left of zero,

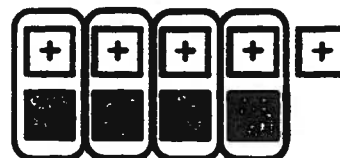
then farther to the left, so I always get a negative integer as the sum.

7. Use tiles to add or subtract.

a) $(+3) \div (-2) = \underline{+5}$

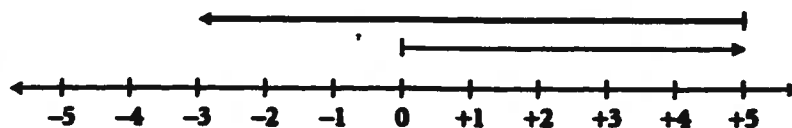


b) $(+5) + (-4) = \underline{+1}$

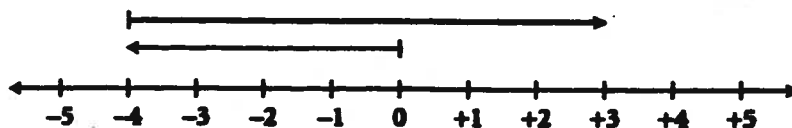


8. Use a number line to add or subtract.

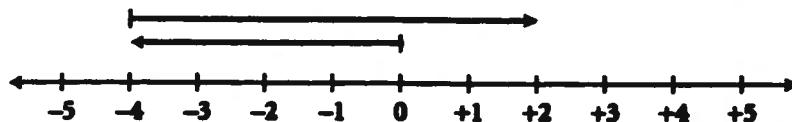
a) $(+5) + (-8) = \underline{-3}$



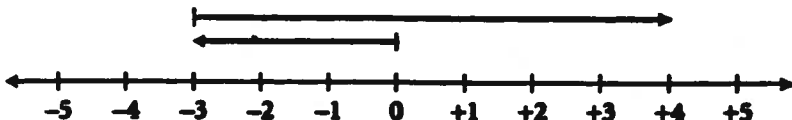
b) $(-4) - (-7) = \underline{+3}$



c) $(-4) + (+6) = \underline{+2}$



d) $(-3) - (-7) = \underline{+4}$



9. Calculate each difference.

a) The temperature went from -7°C to $+8^{\circ}\text{C}$.

$+15^{\circ}\text{C}$

b) The temperature went from $+20^{\circ}\text{C}$ to $+3^{\circ}\text{C}$.

-17°C

Unit Review

Unit 3.

1. Write each fraction as a decimal.

Identify each decimal as terminating or repeating.

a) $\frac{3}{10}$ 0.3 terminating

b) $\frac{1}{3}$ $0.\overline{3}$ repeating

c) $\frac{7}{8}$ 0.875 terminating

d) $\frac{1}{5}$ 0.2 terminating

$\frac{3}{4} = 3 \div 4 = 0.75$

2. Write each decimal as a fraction or mixed number.

a) 0.6 $\frac{6}{10}$

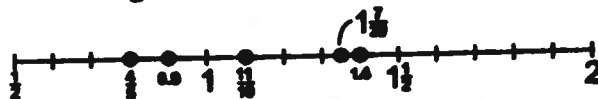
b) 0.75 $\frac{75}{100}$

c) 2.5 $2\frac{5}{10}$

d) $0.\overline{7}$ $\frac{7}{9}$

3. Order the numbers from least to greatest. Use the number line.

$0.9, \frac{11}{10}, \frac{4}{5}, 1.4, 1\frac{7}{20}$



From least to greatest: $\frac{4}{5}, 0.9, \frac{11}{10}, 1\frac{7}{20}, 1.4$

4. Use equivalent fractions to order these numbers from greatest to least:

$2\frac{1}{2}, 1\frac{3}{8}, 2\frac{3}{5}, 1\frac{7}{10}$

From greatest to least: $2\frac{3}{5}, 2\frac{1}{2}, 1\frac{7}{10}, 1\frac{3}{8}$

5. Use place value to order these numbers from least to greatest:

$1.3825, 1\frac{4}{5}, 1.236, 1\frac{1}{3}, 1.333, 1.810$

From least to greatest: $1.236, 1.333, 1\frac{1}{3}, 1.3825, 1\frac{4}{5}, 1.810$

6. Matthew bought a shirt for \$21.99, pants for \$36.78, and a belt for \$10.50.

What is the total amount for the purchases without sales tax? \$69.27

7. Kerry has grown 2.1 cm since last September.
She is now 165 cm tall.

How tall was Kerry last September? 162.9 cm

8. Multiply. Use front-end estimation to place the decimal point in the answer.

a) $0.5 \times 0.7 = \underline{0.35}$

b) $2.9 \times 0.8 = \underline{2.32}$

c) $3.5 \times 3.2 = \underline{11.2}$

d) $1.4 \times 2.9 = \underline{4.06}$

9. Anne cycles 15.5 km each hour.
She cycles for 3.25 h.

How far does Ann cycle? 50.375 km

10. Divide. Write each quotient to the nearest tenth where necessary.

a) $8.7 \div 0.6 = \underline{14.5}$

b) $5.7 \div 1.5 = \underline{3.8}$

c) $43.1 \div 2.1 = \underline{20.5}$

d) $23.5 \div 4.8 = \underline{4.9}$

11. Amal bought 3.5 kg of bananas for \$2.42.

What was the cost of 1 kg of bananas? \$0.69

12. Evaluate.

a) $5.3 - 2.3 \times 2 = \underline{0.7}$ b) $(67.2 + 12) + 2.4 - 1.2 = \underline{31.8}$

The order of operations with decimals is the same as with whole numbers.

13. Write each fraction as a decimal and a percent.

a) $\frac{1}{2} = \underline{0.5} = \underline{50\%}$ b) $\frac{17}{25} = \underline{0.68} = \underline{68\%}$

c) $\frac{19}{20} = \underline{0.95} = \underline{95\%}$ d) $\frac{3}{5} = \underline{0.6} = \underline{60\%}$

14. Ivana got $\frac{21}{25}$ on her science test.

She got 86% on her math test.

Which of her test marks is greater? Explain.

Ivana's math test mark is greater.

$$\frac{21}{25} = 0.84 = 84\%$$

$$86\% > 84\%$$

15. Find each percent.

a) 3% of 25

$$3\% = \frac{3}{100} = 0.03$$

$$0.03 \times 25 = \underline{0.75}$$

b) 24% of \$9.00

$$24\% = \frac{24}{100} = 0.24$$

$$0.24 \times \$9.00 = \underline{\$2.16}$$

c) 40% of 95

$$40\% = \frac{40}{100} = 0.4$$

$$0.4 \times 95 = \underline{38}$$

16. Sylvia is going to buy a new jacket.

The regular price is \$68.00.

The jacket is on sale for 25% off.

There is 14% sales tax on the jacket.

How much will Sylvia pay for the jacket?

Sylvia will pay 75% of the regular price.

$$75\% = \frac{75}{100} = 0.75$$

$$0.75 \times \$68.00 = \$51.00$$

$$14\% \text{ of } \$51.00 = 0.14 \times \$51.00 = \$7.14$$

$$\$51.00 + \$7.14 = \$58.14$$

Sylvia will pay \$58.14 for the jacket.

Unit Review

Unit 4.

1. This circle has its centre at point O.

a) Draw a radius of the circle.

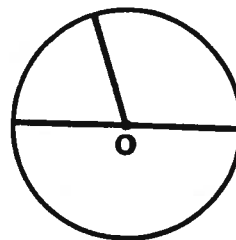
What is the length of the radius? 1.5 cm

b) Draw a diameter of the circle.

What is the length of the diameter? 3 cm

c) Write a relationship between the radius, r , and the diameter, d , of a circle.

Diameter is 2 times the radius or radius is one-half the diameter; $d = 2r$ or $r = \frac{d}{2}$



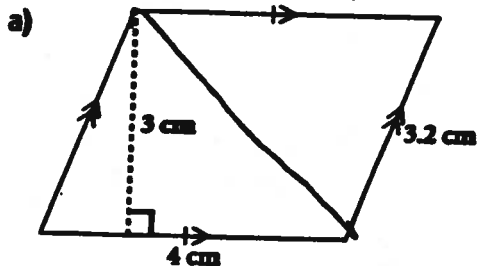
2. Billy plans to put some plastic edging around his circular fish pond. The diameter of the pond is 5 m.

Find the amount of plastic edging that Billy will need.

$C = \pi d = \pi(5) \approx 16$; Billy will need about 16 m of edging.

15.7 m

3. Find the area of each shape.



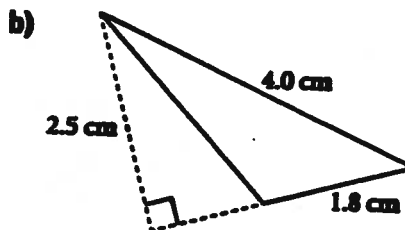
Base = 4 cm

Height = 3 cm

Area = base $\times$ height

Area = 4 $\times$ 3 = 12

The area is 12 cm².



Area = $\frac{bh}{2}$

Area = $\frac{1.8 \times 2.5}{2} = 2.25$

The area is 2.25 cm².

4. Estimate the area of each circle, then calculate the area to the nearest square unit.

a) radius of 4 mm

Estimate: about 48 mm²

Area: about 50 mm²

b) diameter of 10.1 m

Estimate: about 75 m²

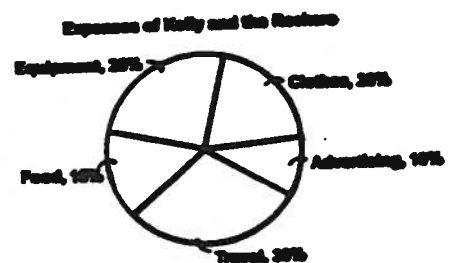
Area: about 80 m²

Use $\pi = 3$
in your
estimates.

5. Kelly and her friends plan to start a rock band. They will play in their town and in the surrounding area. The band has made this table to show its expenses as percents of what it will earn.

Expenses of Kelly and the Rockers

Type of Expense	Percent of budget	Each percent as an angle
Advertising	10%	36°
Clothes	20%	72°
Equipment	25%	90°
Food	15%	54°
Travel	30%	108°



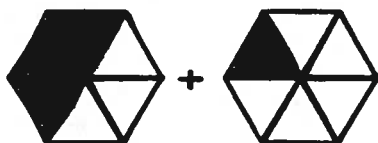
- Complete the table.
- Draw and label a circle graph.
- The band estimates it will earn \$10 000 from its gigs.
How much money will the band spend on food? \$1500
- Which type of expense is one-half the amount spent on clothes? Advertising
How can you tell this:
 - from the table? 10% is one-half of 20%
 - from the graph? The sector for advertising is one-half the size of the sector for clothes.
- The band wants to spend \$5000 on equipment upgrades.
How much will the band have to earn to be able to do this? \$20 000
- Write a question you can answer from the graph.
Sample Question: Which type of expense is about one-third of the band's total expenses?
- Answer your question.
Travel is 30% , which is close to one-third.

Unit Review

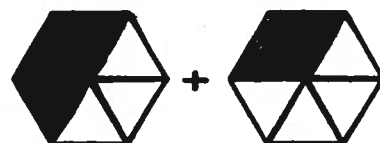
Unit 5

1. Colour each pair of Pattern Block shapes to help you to add the fractions.

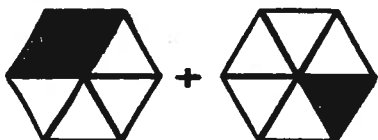
a) $\frac{1}{2} + \frac{1}{6} = \frac{4}{6}$, or $\frac{2}{3}$



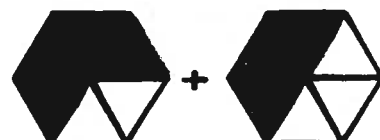
b) $\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$



c) $\frac{1}{3} + \frac{1}{6} = \frac{3}{6}$, or $\frac{1}{2}$



d) $\frac{2}{3} + \frac{1}{2} = \frac{7}{6}$, or $1\frac{1}{6}$



2. Use fraction circles to find each sum.

a) $\frac{3}{5} + \frac{3}{10} = \frac{9}{10}$



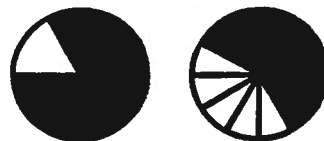
b) $\frac{5}{8} + \frac{1}{4} = \frac{7}{8}$



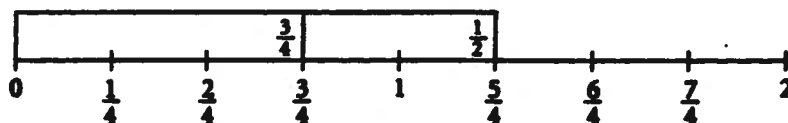
c) $\frac{5}{12} + \frac{3}{4} = \frac{14}{12}$, or $1\frac{2}{12}$, or $1\frac{1}{6}$



d) $\frac{5}{6} + \frac{7}{12} = \frac{17}{12}$, or $1\frac{5}{12}$



3. Write the addition equation represented by the diagram.



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

4. Use fraction strips and number lines to add.

a) $\frac{2}{3} + \frac{1}{6} = \frac{5}{6}$

b) $\frac{1}{2} + \frac{3}{10} = \frac{8}{10}, \text{ or } \frac{4}{5}$

c) $\frac{3}{4} + \frac{11}{12} = \frac{20}{12}, \text{ or } 1\frac{8}{12}, \text{ or } 1\frac{2}{3}$

d) $\frac{3}{2} + \frac{2}{5} = \frac{19}{10}, \text{ or } 1\frac{9}{10}$

e) $\frac{7}{8} + \frac{1}{2} = \frac{11}{8}, \text{ or } 1\frac{3}{8}$

f) $\frac{2}{3} + \frac{3}{4} = \frac{17}{12}, \text{ or } 1\frac{5}{12}$

5. Zach took $\frac{5}{12}$ of an hour to drive to work and $\frac{2}{3}$ of an hour to drive home.

a) Write the total time it took Zach to drive to and from work as a fraction of an hour.

$\frac{13}{12}$ of an hour, or $1\frac{1}{12}$ hours

b) Write the time in part a in minutes. 65 minutes

6. Estimate, then add.

Estimates may vary.

a) $\frac{3}{4} + \frac{2}{5}$

Estimate: $1\frac{1}{4}$

Sum: $\frac{23}{20}, \text{ or } 1\frac{3}{20}$

b) $\frac{5}{8} + \frac{1}{3}$

Estimate: 1

Sum: $\frac{23}{24}$

c) $\frac{5}{9} + \frac{1}{6}$

Estimate: $\frac{3}{4}$

Sum: $\frac{13}{18}$

d) $\frac{1}{2} + \frac{3}{7}$

Estimate: 1

Sum: $\frac{13}{14}$

e) $\frac{2}{3} + \frac{3}{5}$

Estimate: $1\frac{1}{4}$

Sum: $\frac{19}{15}, \text{ or } 1\frac{4}{15}$

f) $\frac{4}{5} + \frac{5}{6}$

Estimate: $1\frac{3}{4}$

Sum: $\frac{49}{30}, \text{ or } 1\frac{19}{30}$

7. Use each diagram to find the difference.

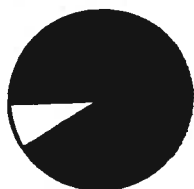
a) $\frac{5}{6} - \frac{1}{3} = \frac{3}{6}, \text{ or } \frac{1}{2}$



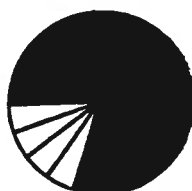
b) $\frac{9}{10} - \frac{3}{5} = \frac{3}{10}$



c) $\frac{11}{12} - \frac{2}{3} = \frac{3}{12}, \text{ or } \frac{1}{4}$



d) $\frac{4}{5} - \frac{3}{4} = \frac{1}{20}$

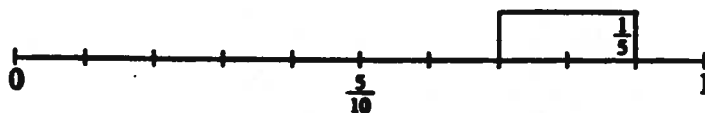
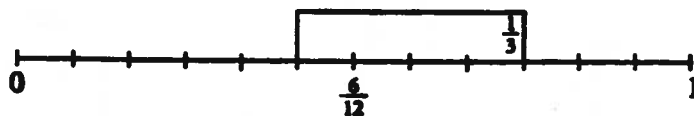


8. Write the subtraction equation represented by each diagram.

a) $\frac{3}{4} - \frac{1}{3} = \frac{5}{12}$

or $\frac{9}{12} - \frac{1}{3} = \frac{5}{12}$

b) $\frac{9}{10} - \frac{1}{5} = \frac{7}{10}$



9. Estimate, then subtract.

Estimates may vary.

a) $\frac{7}{8} - \frac{3}{4}$

Estimate: $\frac{1}{4}$

Difference: $\frac{1}{8}$

b) $\frac{3}{2} - \frac{3}{8}$

Estimate: 1

Difference: $\frac{2}{8}$, or $1\frac{1}{8}$

c) $\frac{5}{4} - \frac{7}{12}$

Estimate: $\frac{3}{4}$

Difference: $\frac{8}{12}$, or $\frac{2}{3}$

d) $\frac{2}{3} - \frac{2}{9}$

Estimate: $\frac{1}{2}$

Difference: $\frac{4}{9}$

10. Add.

a) $3\frac{7}{8} + 1\frac{5}{8} = 5\frac{4}{8}$, or $5\frac{1}{2}$

b) $2\frac{2}{3} + 4\frac{5}{12} = 7\frac{1}{12}$

11. On Sunday, Maya studied $1\frac{1}{4}$ h for her math exam.

On Monday she studied $1\frac{2}{3}$ h.

What is the total time Maya studied?

$2\frac{11}{12}$ h

12. Subtract.

a) $5\frac{11}{12} - 1\frac{7}{12} = 4\frac{4}{12}$, or $4\frac{1}{3}$

b) $2\frac{5}{7} - 1\frac{3}{14} = 1\frac{7}{14}$, or $1\frac{1}{2}$

13. Leigh has $4\frac{1}{2}$ m of ribbon.

He uses $1\frac{3}{4}$ m to wrap a present and $\frac{1}{3}$ m to make a bow.

How much ribbon is left?

$2\frac{5}{12}$ m

Unit Review

Unit 6

1. Write an equation you can use to solve each problem.
Solve each equation by inspection or systematic trial.

a) Gabrielle wants to buy a new snowboard that costs \$300.
She has \$180 in her bank account.
How much more must Gabrielle save so she can buy the snowboard?

$x + 180 = 300$; Gabrielle must save \$120 more.

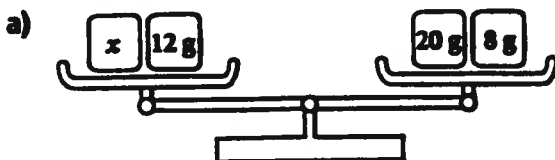
b) Freddy bought a new music player for \$250.
He then had \$380 left in his bank account.
How much was in Freddy's account before he bought the player?

$380 = n - 250$; Freddy had \$630 in his account before he bought the player.

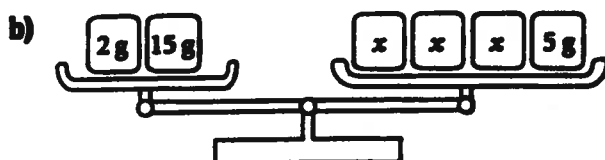
c) Emily helps clean a local yoga studio.
She earns \$8 per hour.
Last month Emily got a \$10 bonus.
Her total earnings were \$170.
How many hours did Emily work?

$8h + 10 = 170$; Emily worked 20 hours.

2. Write an equation that is represented by each balance scales.
Solve the equation. Sketch the steps.



$x + 12 = 20 + 8$; $x = 16$



$2 + 15 = 3x + 5$; $x = 4$

3. Solve each equation using algebra tiles. Sketch the tiles you used. Verify each solution.

a) $x + 8 = 5$ b) $6 = x - 3$ c) $-3 = x + 7$ d) $x - 2 = -5$

$x = -3$

$x = 9$

$x = -10$

$x = -3$

4. Overnight, the temperature dropped by 15°C to -10°C .

a) Write an equation you can solve to find the temperature before it dropped.
 $t - 15 = -10$

b) Use tiles to solve the equation. The temperature was 5°C before it dropped.

5. Solve each equation using algebra. Verify each solution.

a) $4n = 64$ b) $2p + 15 = 21$ c) $5r - 4 = 26$ d) $60 = q + 15$

$n = 16$

$p = 3$

$r = 6$

$q = 45$

6. Dylan starts with \$40. He saves \$12 a week.

After how many weeks will Dylan have each amount?

a) \$100 $40 + 12x = 100$; 5 weeks

b) \$136 $40 + 12x = 136$; 8 weeks

7. Write an equation for each problem. Solve the equation. Verify each answer.

a) A number increased by 7 is 22. What is the number?

$7 + n = 22$; the number is 15.

b) William arranges a number of stamps into 5 groups.

There are 12 stamps in each group. How many stamps did William start with?

$12 = \frac{x}{5}$; William started with 60 stamps.

c) Six less than a number is 25. What is the number?

$n - 6 = 25$; the number is 31.

d) A rectangle has a perimeter of 38 cm. The base is 7 cm.
Sketch and label the rectangle. What is its height?

$7 + h = 19$; the height is 12 cm.

Unit Review

Unit 7

1. Calculate the mean and mode of each set of data.

a) The weekly allowances of ten students:

\$20, \$25, \$15, \$20, \$10, \$20, \$30, \$10, \$20, \$0

Mean: \$17

Mode: \$20

b) Students' scores on a spelling quiz marked out of 10:

5, 8, 8, 4, 6, 3, 10, 10, 4, 6, 7, 9, 7, 9, 9

Mean: 7

Mode: 9

2. Arrange the data in each set in order, then calculate the median and the range.

a) The heights, in centimetres, of eleven 12-year olds:

160, 155, 162, 152, 161, 154, 153, 160, 158, 155, 159

From least to greatest: 152, 153, 154, 155, 155, 158, 159, 160, 160, 161, 162

Median: 158

Range: 10

b) The hours that ten grade 7 students exercised in one week:

5, 7, 18, 5, 13, 9, 4, 12, 7, 20

From least to greatest: 4, 5, 5, 7, 7, 9, 12, 13, 18, 20

Median: 8

Range: 16

3. These data show the daily temperatures, in degrees Celsius, for two weeks in the summer in Nelson, B.C:

23, 25, 22, 25, 28, 24, 25, 24, 25, 25, 52, 24, 20, 22

a) Find the mean, median, mode, and range for these data.

Mean: 26°C

Median: 24.5°C

Mode: 25°C

Range: 32°C

b) Identify the outlier: 52°C

Why do you think the outlier is so much greater than the other temperatures?

Sample Answer: The numbers were transposed; the temperature should have been 2

- c) Calculate the mean, median, mode, and range without the outlier.

Mean: 24°C Median: 24°C Mode: 25°C Range: 8°C

- d) When reporting the average daily temperature, should the outlier be included?

Explain. No, because it is probably an error

4. The times, in minutes, that 10 students spent walking home from school one day are:

20, 16, 10, 12, 22, 65, 8, 12, 18, 7

- a) Calculate the mean, mode, and median times for these data.

Mean: 19 min Mode: 12 min Median: 14 min

- b) Identify the outlier. 65

- c) Calculate the mean, mode, and median without the outlier.

Mean: About 14 min Mode: 12 min Median: 12 min

- d) Which average best describes the data? Explain.

Sample Answer: The median without the outlier, because then one-half the times are greater than the median and one-half are less than the median.

5. Cary scored these points in his last six basketball games: 5, 8, 10, 7, 15, 15

- a) Find the mean, median, and mode scores.

Mean: 10 Median: 9 Mode: 15

- b) Which measure of central tendency is Cary likely to use to persuade his coach that he is a valuable player? Explain.

Sample Answer: Cary will likely use the mode because it is the greatest measure.

- c) Which measure is the coach likely to use to help her decide if Cary is a valuable player? Explain.

Sample Answer: The coach will likely use the median or the mean because they are more representative of Cary's scores.

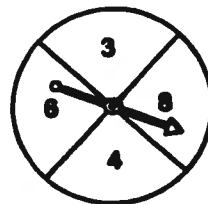
6. A basket of fruit contains 4 apples, 5 bananas, 6 oranges, and 10 kiwi fruits. A piece of fruit is chosen at random. Find the probability of each event. Write each probability 3 ways.

a) An orange is picked. $\frac{6}{25}$, or 6:25, or 24%

b) An apple or a banana is picked. $\frac{9}{25}$, or 9:25, or 36%

c) A grape is picked. $\frac{0}{25}$, or 0:25, or 0%

7. Fran designs a game called *Product 24*. She makes this spinner:



The pointer is spun twice. To win this game, the pointer must land on two numbers with a product of 24.

- a) Complete the tree diagram to show all possible outcomes for this game.

1st Spin	2nd Spin	Outcomes
3	3	3, 3
	4	3, 4
	6	3, 6
	8	3, 8
4	3	4, 3
	4	4, 4
	6	4, 6
	8	4, 8
6	3	6, 3
	4	6, 4
	6	6, 6
	8	6, 8
8	3	8, 3
	4	8, 4
	6	8, 6
	8	8, 8

b) What is the total number of outcomes? 16

c) How many favourable outcomes are there? 4

d) What is the probability of winning Fran's game? $\frac{4}{16}$, or $\frac{1}{4}$, or 25%

Unit Review

Unit 8

1. Draw line segment FG.

a) Draw a parallel line segment. Label it HJ.

Explain your strategy for drawing the parallel segment.

Sample Answer: I placed one edge of a ruler along FG.

I drew line segment HJ along the other edge.

b) Draw the perpendicular bisector of HJ. Label it KM.

Explain your strategy for drawing the perpendicular segment.

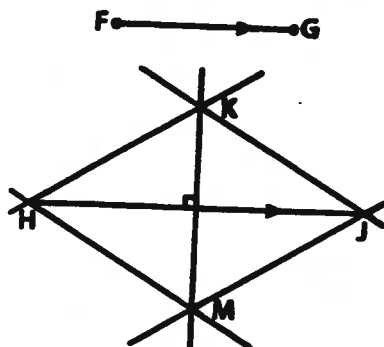
Sample Answer: I used a ruler. I placed the ruler across HJ and drew

a line along each edge. I moved the ruler so each of H and J was on

the other edge of the ruler. I joined the two points K and M where the

lines I drew intersected.

Sample Answer:



2. $\angle PQR$ is an obtuse angle.

Draw the bisector of $\angle PQR$.

Label it KQ.

Draw the perpendicular bisector of QR.

Label it MN.

MN intersects QR at J.

a) What do you know about $\angle POK$?

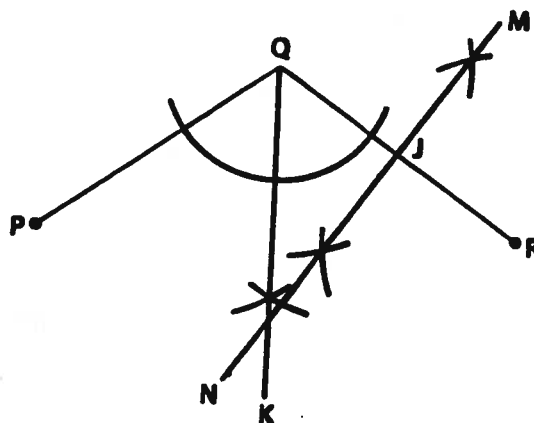
Sample Answer: $\angle POK = \angle ROK$,

and $\angle POK$ is one-half of $\angle PQR$

b) What do you know about segment QJ?

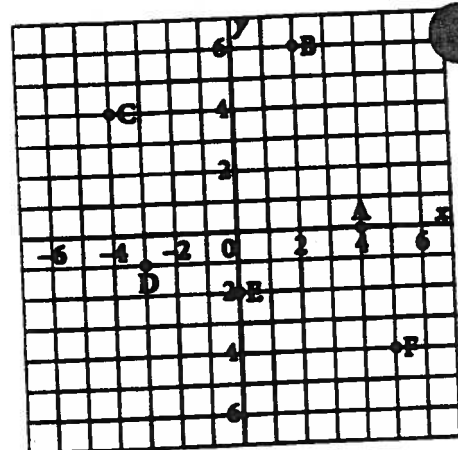
Sample Answer: $QJ = JR$, and QJ

is one-half of QR



3. Use the diagram at the right.

- The coordinates of D are $(-3, -1)$.
- The coordinates of F are $(5, -4)$.
- Point B has coordinates $(2, 6)$.
- The coordinates of the origin are $(0, 0)$.
- Point A has y -coordinate 0.
- Point E has x -coordinate 0.
- Point C is in Quadrant 2.



4. Plot these points on the coordinate grid: $A(0, 4)$, $B(6, 5)$, and $C(7, -2)$. Join the points to form $\triangle ABC$. On the same grid, draw the image of $\triangle ABC$ after each transformation.

- A translation 9 units left and 7 units down
Label the image $\triangle A'B'C'$.
Write the coordinates of the vertices of $\triangle A'B'C'$.

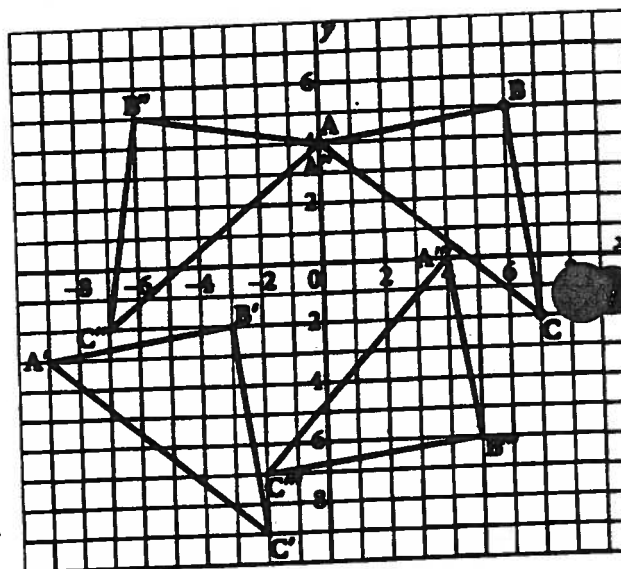
$A'(-9, -3)$ $B'(-3, -2)$ $C'(-2, -9)$

- A reflection in the y -axis
Label the image $\triangle A''B''C''$. Write the coordinates of the vertices of $\triangle A''B''C''$.

$A''(0, 4)$ $B''(-6, 5)$ $C''(-7, -2)$

- A rotation of -90° about the origin
Label the image $\triangle A'''B'''C'''$.
Write the coordinates of the vertices of $\triangle A'''B'''C'''$.

$A'''(4, 0)$ $B'''(5, -6)$ $C'''(-2, -7)$



A clockwise rotation is shown by a negative angle such as -90° .

How are the images alike? Different? Sample Answer: All the images are congruent to the original triangle. For the translation and rotation, the orientation of the triangle does not change, but for reflection, the orientation changes.