

FINAL EXAM

Mr. Martinez

Math 7 Review

Graphing

Unit 8

#2

Key Words

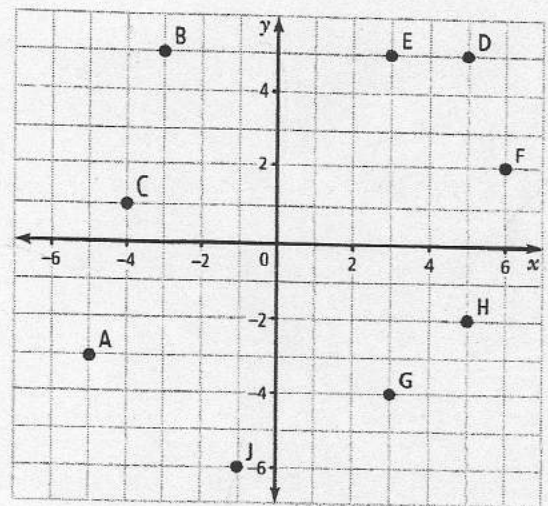
For #1 to #9, write the number that matches the description.

- | | |
|---|-----------------------|
| 1. A pair of numbers in the form of (x, y) | _____ coordinate grid |
| 2. Another name for a Cartesian plane | _____ ordered pair |
| 3. A translation, a reflection, or a rotation | _____ origin |
| 4. A slide along a straight line | _____ rotation |
| 5. Looking in a mirror | _____ x-axis |
| 6. Doing a "360" on a skateboard | _____ y-axis |
| 7. The horizontal axis of a coordinate grid | _____ transformation |
| 8. The vertical axis of a coordinate grid | _____ translation |
| 9. The name for point $(0, 0)$ | _____ reflection |

Cartesian Plane

10. List the ordered pairs in each quadrant.

- a) quadrant I D(__, __), E(__, __), F(__, __),
- b) quadrant II
- c) quadrant III
- d) quadrant IV



11. Plot the points.

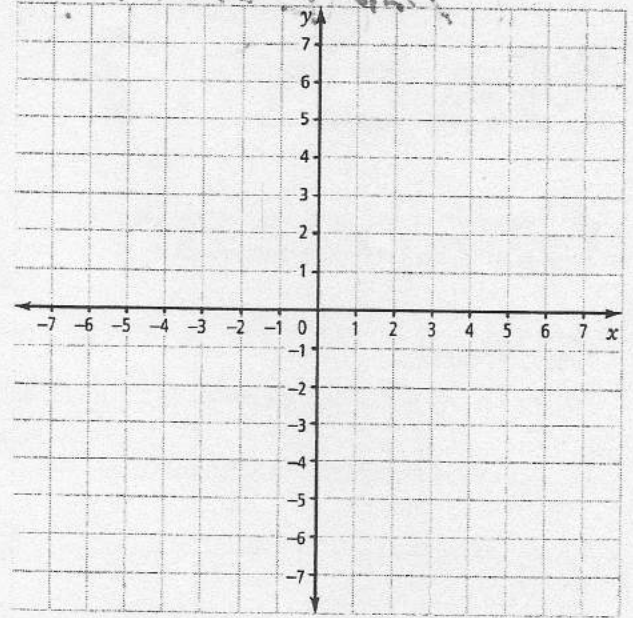
A(-5, 2) B(-4, 0)

C(-2, -1) D(0, -3)

E(1, -4) F(3, -6)

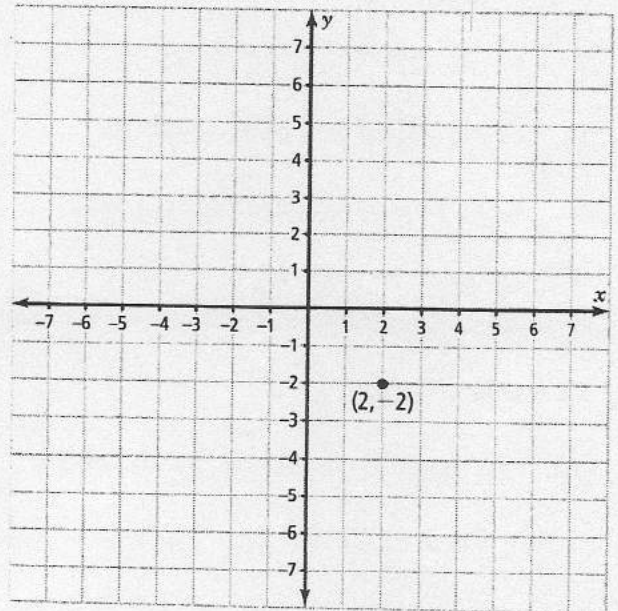
a) Which point seems out of place?

b) What do the coordinates of the other 5 points have in common?



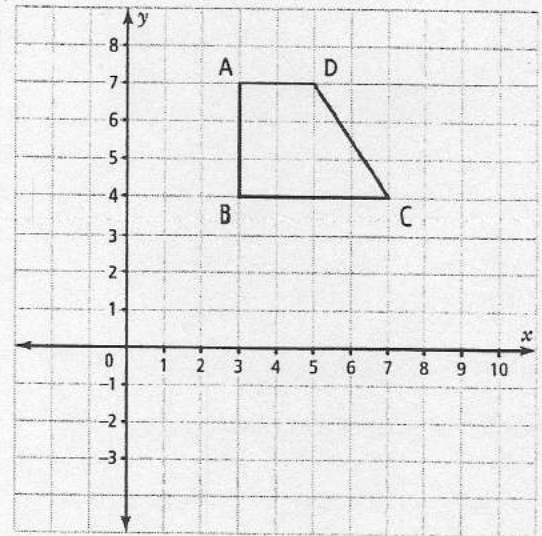
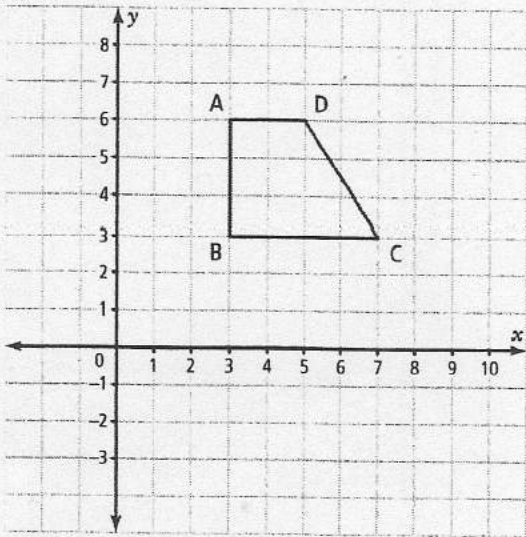
Create Designs

12. Create the letter H on the coordinate grid.
Start at (2, -2). The letter must be 5 units high and 4 units wide.
The points must lie in all 4 quadrants.

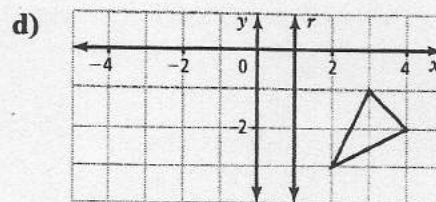
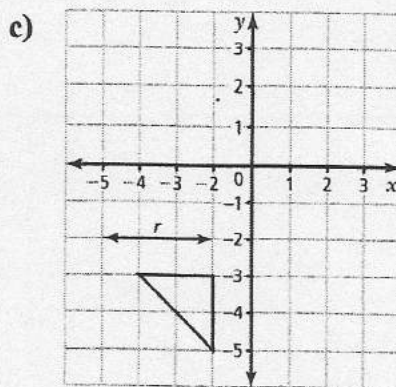
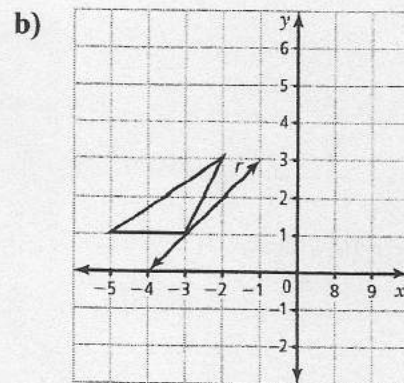
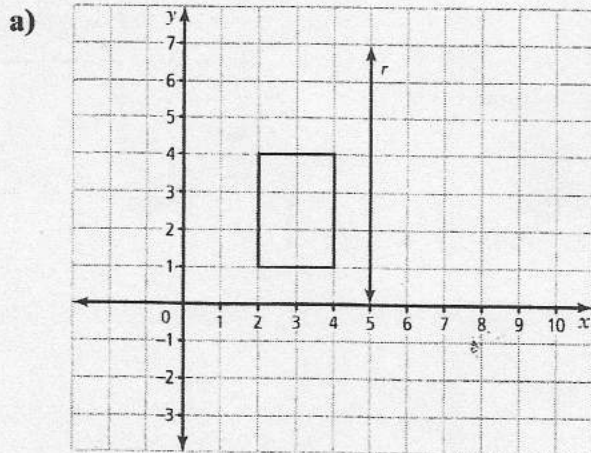


Transformations

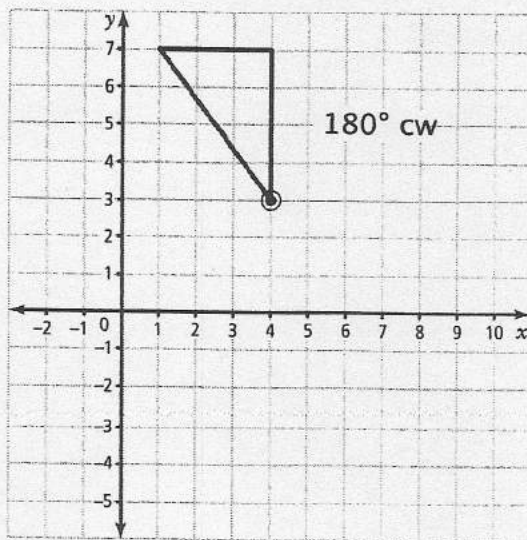
13. a) Translate ABCD 2 units left and 4 units down. Draw the image. b) Draw the image of ABCD after the translation 5 units left and 1 unit down.



14. For each figure, draw the reflection image in line r .



15. Draw the rotation image of the figure.



Horizontal and Vertical Distances

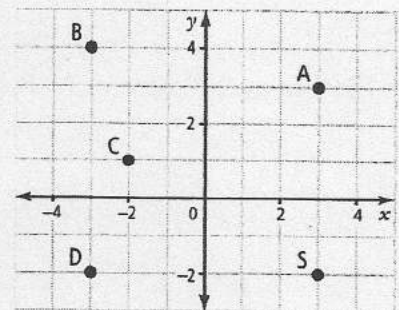
16. Fill in the blank and circle the correct word in brackets.

a) Point S to point A: 0 units and _____ units ((up), down).

b) Point S to point B: _____ units (left, right)
and _____ units (up, down).

c) Point S to point C: _____ units (left, right)
and _____ units (up, down).

d) Point S to point D: _____ units (left, right)
and _____ units (up, down).

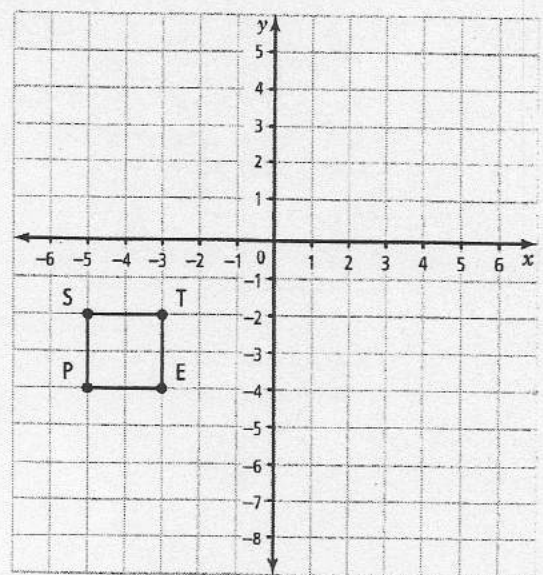


17. a) Translate the square 8 units to the right and 3 units down. Draw $S'T'E'P'$.

b) Fill in the blanks and circle the correct answer in the brackets.

From point S to S' is _____ units (left, right)
and _____ units (up, down).

From point T to T' is _____ units (left, right)
and _____ units (up, down).



Operations on Decimal Numbers

Unit 3 - Decimals

Key Words

For #1 to #5 write the number that matches the description.

1. The order of steps you do to solve a math expression. _____ estimate
2. To approximate an answer. _____ calculate
3. To find the exact answer. _____ quotient
4. The answer when you multiply. _____ order of operations
5. The answer when you divide. _____ product

Add and Subtract Decimal Numbers

6. Estimate. Then place the decimal point in the correct position.

a) $14.5 + 11.3 = 258$

b) $17.8 - 12.7 = 51$

14.5 is close to _____

11.3 is close to _____

Think: _____ + _____ = _____

d) $75.83 - 23.00 = 5283$

e) $62.57 + 28.41 = 9098$

e) $324.4 + 125.2 = 4496$

f) $322.7 - 120.5 = 2022$

7. Estimate. Then calculate.

a) $46.1 + 13.2$

b) $67.4 - 5.1$

$$\begin{array}{r} 46.1 \rightarrow 46 \\ + 13.2 \rightarrow +13 \\ \hline \end{array} \quad \begin{array}{l} \text{Calculate: } 46.1 \\ + 13.2 \\ \hline \end{array}$$

Estimate:

Line up decimal points.

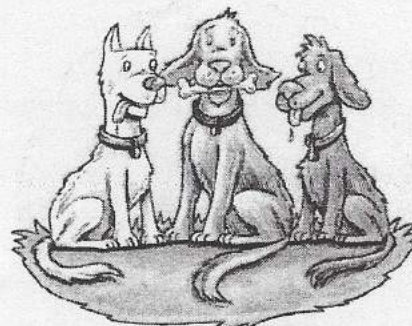
c) $47.6 + 10.5$

d) $87.7 - 5.1$

8. Jordan has 3 dogs:

Max has a mass of 28.2 kg
 Sam has a mass of 31.7 kg
 Lucy has a mass of 26.4 kg

Line up the
 decimals points
 and add.



What is the total mass of the 3 dogs?

Multiply Decimal Numbers

9. Without calculating, place the decimal point in the correct position.

a)
$$\begin{array}{r} 12.2 \\ \times 6.8 \\ \hline 8296 \end{array}$$

12.2 is close to 10
 6.8 is close to 7

b)
$$\begin{array}{r} 48.6 \\ \times 0.9 \\ \hline 4374 \end{array}$$

$10 \times 7 = \underline{\hspace{2cm}}$

c)
$$\begin{array}{r} 8.8 \\ \times 4.7 \\ \hline 4136 \end{array}$$

d)
$$\begin{array}{r} 11.2 \\ \times 3.4 \\ \hline 3808 \end{array}$$

10. Circle the best estimate.

a)
$$\begin{array}{r} 5.3 \rightarrow 5 \\ \times 7 \rightarrow \times 7 \\ \hline \end{array}$$

Estimate: 28 30 35

b)
$$\begin{array}{r} 5.7 \rightarrow \\ \times 5 \rightarrow \times \\ \hline \end{array}$$

Estimate: 25 30 50

c)
$$\begin{array}{r} 6.2 \rightarrow \\ \times 7 \rightarrow \times \\ \hline \end{array}$$

Estimate: 28 30 42

d)
$$\begin{array}{r} 19.9 \rightarrow \\ \times 4 \rightarrow \times \\ \hline \end{array}$$

Estimate: 80 90 100

11. Calculate.

a)
$$\begin{array}{r} 1.25 \\ \times 4 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 6.2 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c) } 3.56 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d) } 12.8 \\ \times 1.2 \\ \hline \end{array}$$

12. A kitten has a mass of 1.5 kg.
An adult cat has a mass 2.5 times the mass of the kitten.
What is the mass of the adult cat?

Show your work!

13. It costs \$3.99 to rent a movie.
You rent 5 movies.
How much do you pay?

Divide Decimal Numbers

14. Place the decimal point in the correct position.

$$\text{a) } 36.6 \div 3 = 122 \rightarrow \begin{array}{r} 122 \\ 3 \overline{)36.6} \end{array}$$

$$\text{b) } 6.92 \div 4 = 173 \rightarrow \begin{array}{r} 173 \\ 4 \overline{)6.92} \end{array}$$

$$\text{c) } 33.96 \div 6 = 566 \rightarrow \begin{array}{r} 566 \\ 6 \overline{)33.96} \end{array}$$

$$\text{d) } 64.8 \div 0.4 = 1621 \rightarrow \begin{array}{r} 1621 \\ 0.4 \overline{)64.84} \end{array}$$

15. Estimate, then calculate using a calculator. The first one has been done for you.

Question	Estimate	Calculate
a) $29.6 \div 5.2$	$30 \div 5 = 5 \overline{)30}^6$	$29.6 \div 5.2 = 5.69$
b) $29.8 \div 10$		
c) $12.4 \div 3.2$		
d) $18.5 \div 0.5$		

e) $36.6 \div 6.1$		
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16. Ken mailed a 12.75 kg package of skates to his brother.
It cost \$51.00 to mail the skates.
How much did Ken pay per kilogram to mail the skates?

Find the cost to
mail 1 kg.

Order of Operations and Decimal Numbers

17. Is the answer correct? Circle YES or NO.

a) $4.5 + 2.5 \times 3 = 14.7$ YES NO b) $4 \times 1.5 + 3.5 = 9.5$ YES NO

$$4.5 + \underbrace{2.5 \times 3}$$

$$= 4.5 + \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

18. Calculate. Round to the nearest tenth (1 decimal place).

a) $3.5 + 2.5 \times 2.5$

b) $2.6 - 3.3 \div 3$

19. The costs to go to a movie are

Adults: \$8.50

Children: \$4.50

Seniors: \$6.25

Yesterday, 20 adults, 10 children, and 30 seniors went to the movie.

- a) Is this expression for the total cost correct? Circle YES or NO.

$$(20 \times \$8.50) + (10 \times \$4.50) + (30 \times \$6.25)$$

- b) Calculate the total cost to go to the movie.

Geometry and Measurement

Unit 8

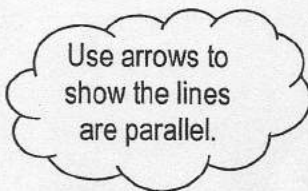
Key Words

For #1 to #6, write the number that matches the description.

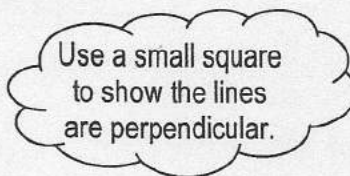
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|--|-------|------------------------|
| 1. Lines that cross at a 90° angle | _____ | angle |
| 2. Lines that never meet | _____ | angle bisector |
| 3. A line that divides a line segment into 2 equal parts and is at right angles (90°) to it | _____ | line segment |
| 4. A line that divides an angle into 2 equal parts | _____ | perpendicular |
| 5. A part of a line between 2 endpoints | _____ | parallel |
| 6. 2 line segments with a common endpoint | _____ | perpendicular bisector |

Parallel and Perpendicular Line Segments

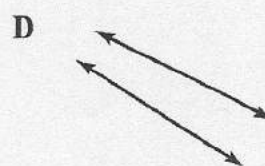
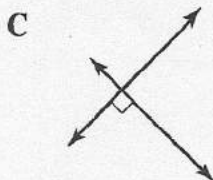
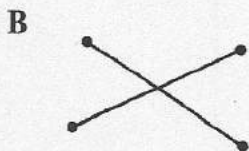
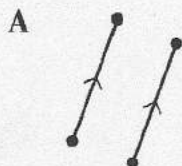
7. Draw a pair of parallel lines.



8. Draw a pair of line segments that are perpendicular.



9. Draw a circle around the parallel line segments. Draw a square around the perpendicular line segments.



Draw Perpendicular Bisectors

10. a) Draw a line segment 5 cm long. Label it AB.

b) Draw a perpendicular bisector of the line segment.

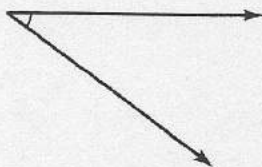
c) Label the middle point D.

d) Measure each line segment.

AD = _____ cm DB = _____ cm

Draw Angle Bisectors

11. Draw the angle bisector.



12. a) Draw a 120° angle. Label it XYZ.

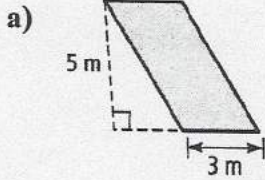
b) Draw the angle bisector of $\angle XYZ$.

c) Measure the new angles: _____ $^\circ$ and _____ $^\circ$

Area of a Parallelogram

13. Calculate the area of each parallelogram.

$$A = b \times h$$



b) $b = 5.4 \text{ mm}, h = 3.7 \text{ mm}$

Formula →

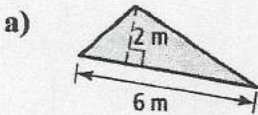
Substitute →

Answer with Units → _____ m^2

Area of a Triangle

14. Calculate the area of each triangle.

$$A = b \times h \div 2$$



b) $b = 5.2 \text{ m}, h = 5.3 \text{ m}$

Formula →

Substitute →

Answer with Units → _____ m^2

Unit 3

Fractions Decimals, Percents

For #1 to #3, write the number that matches the description.

1. Out of 100 _____ terminating decimal

2. $\frac{5}{8}$ as a decimal number _____ percent

3. Can be expressed as $0.\overline{3}$ _____ repeating decimal

Connect Fractions, Decimals, and Percents

Use your money skills to think about fractions, decimals, and percents.

M•E



\$0.25
 $\frac{1}{4}$ of a dollar
 25% of a dollar



\$0.50
 $\frac{1}{2}$ of a dollar
 50% of a dollar



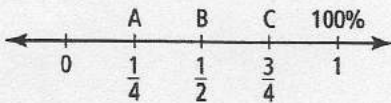
\$0.10
 $\frac{1}{10}$ of a dollar
 10% of a dollar

4. Show how to find each amount.

a) 10% of 25

b) 50% of 98

5. Use the number line to answer the questions.



- a) What is the percent value of A? _____
- b) What is the decimal value of C? _____
- c) Write B as a percent. _____
6. Arrange the numbers in ascending order (least to greatest).

$\frac{3}{4}$, $0.\overline{7}$, 76%

Write the numbers
as a decimal first.

7. The cost of a backpack is 60% of the cost of a shirt.

50% + 10% = 60%

- a) The shirt costs \$30. How much does the backpack cost?

Find 50% of \$30.

Find 10% of \$30.

Now add your answers.

b) What is the total cost of the backpack **and** shirt before tax?

Fractions, Decimals, and Percents

8. Fill in the missing values in the table. Write the fractions in lowest terms.

	Fraction	Decimal Number	Percent
a)	$\frac{1}{4}$	$1 \div 4$ = _____	_____ $\times 100$ = _____
b)	$0.75 = \frac{75}{\square} = \frac{\square}{\square}$	0.75	
c)			20%
d)		0.05	
e)			35%

9. Nine out of 24 students who wrote a Math test received an A. What percent of students received an A?

10. Express each fraction as a decimal number. Is the decimal number a terminating decimal or a repeating decimal?

	Fraction	Decimal Number	Terminating or Repeating Decimal?
a)	$\frac{5}{6}$		
b)	$\frac{3}{4}$		
c)	$\frac{4}{9}$		

11. Show each fraction as a decimal number. Round it to the place value shown.

	Fraction	Decimal Number	Rounded Number
a)	$\frac{23}{35}$		(hundredths) _____
b)	$\frac{45}{82}$		(tenths) _____
c)	$\frac{108}{211}$		(thousandths) _____
d)	$\frac{76}{320}$		(tenths) _____

Units	Decimal	Tenths	Hundredths	Thousandths	Ten-thousandths
	.				

12. Randy got 45 out of 60 on a test.

- a) Calculate the percent. Round your answer to the nearest tenth of a percent (1 decimal place).

$$\frac{45}{60}$$

13. Express each decimal as a fraction. Write the fraction in lowest terms.

a) 0.8

b) 0.35

c) 0.167

d) 0.55

Applications of Percents

14. Mikayla gets a weekly allowance of \$20. She puts 25% in a savings account each week.

- a) How much money does she put in a savings account each week?

- b) How much money will be in the account after 4 weeks?

15. Tess bought a DVD for \$22 and a sweatshirt for \$58. She received a 25% discount.

- a) What is the dollar value of the discount Tess received?

- b) What did the DVD and sweatshirt cost after the discount? Do not include tax.

Unit 7

Probability

For #1 to #5, fill in the blanks.

experimental probability	favorable theoretical	outcome tree diagram	possible
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- Probability is the number of _____ outcomes divided by the number of _____ outcomes.
- The probability of an event happening based on experimental results is called _____ probability.
- A table or a _____ can be used to organize outcomes.
- One possible result of a probability experiment is called an _____.
- The chance of an event happening is called _____.

Probability

$$\text{Probability} = \frac{\text{favourable outcomes}}{\text{possible outcomes}}$$

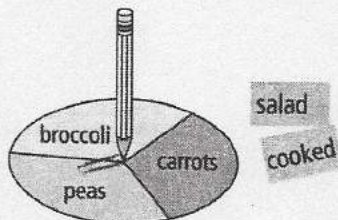
6. Melée chooses a card at random. Express each answer as a fraction, a ratio, and a percent.

- What is $P(\text{hearts})$?
- What is $P(3 \text{ or } 4)$?
- What is $P(\text{less than } 7)$?

Organize Outcomes

7. A chef chooses a tile and spins the spinner.

a) Complete the table.

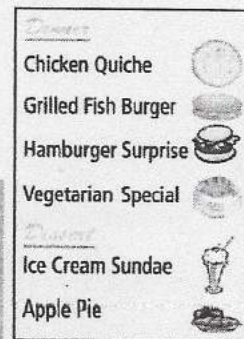
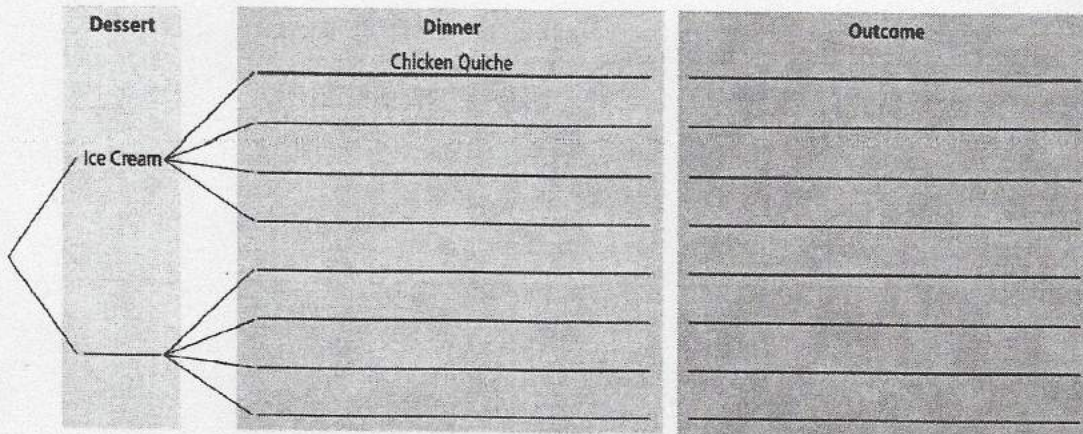


		Spinner		
		broccoli	peas	carrots
Tile	salad			
	cooked			

b) List the outcomes _____

8. Carrie closes her eyes and randomly points to one dinner and one dessert on the menu.

a) Complete the tree diagram to show all the possible combinations.



b) How many dinner and dessert combinations are possible? _____

Probabilities of Simple Independent Events

9. You flip a coin twice.

a) Complete the table.

b) What is the probability of flipping 2 tails?

		Second Flip	
		Heads (H)	Tails (T)
First Flip	Heads (H)		
	Tails (T)		

10. A tool box contains 1 hammer, 1 screwdriver, and 1 tape measure. A pail contains 1 nail, 1 hook, and 2 screws. You choose 1 item from the tool box and 1 item from the pail.

a) Complete the table.

		Tool Box		
		Hammer (H)	Screwdriver (S)	Tape Measure (T)
Pail	Nail			
	Hook			

	Screw			
	Screw			

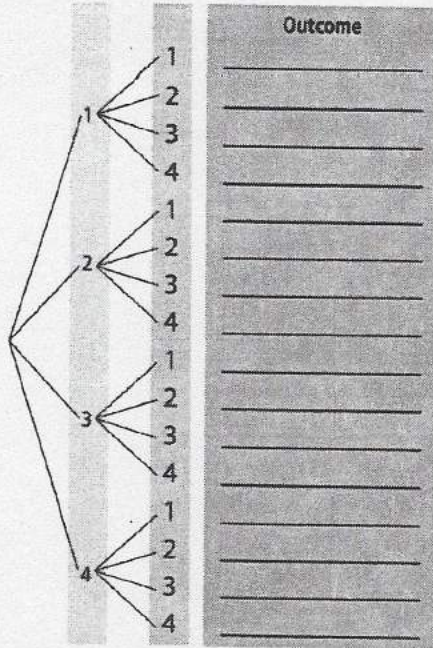
b) What is $P(\text{hammer, nail})$?

c) What is $P(\text{bolt, screwdriver})$?

Applications of Independent Events

11. a) Draw 2 events that could be represented by this diagram.

Draw objects such as spinners or dice.



b) What is the probability that both numbers are the same?

Complete the outcomes in your tree diagram.

c) What is the probability that the sum of the numbers is 5?

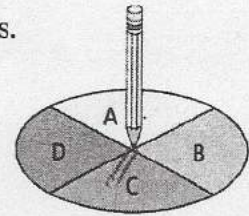
Sum of Outcomes				
	1	2	3	4
1	$1 + 1 = \underline{\hspace{2cm}}$	$1 + 2 = \underline{\hspace{2cm}}$		
2				
3				
4				

$P(\text{sum is } 5) = \frac{\boxed{\hspace{2cm}}}{\boxed{\hspace{2cm}}}$

Conduct Probability Experiments

12. The tally chart shows the experimental outcomes of spinning the spinner 20 times.

A	B	C	D



a) From the tally chart, what is the experimental probability of spinning C?

$$\text{Experimental Probability} = \frac{\text{number of favourable outcomes}}{\text{total number of trials}}$$

b) What is the theoretical probability of spinning C?

$$\text{Theoretical Probability} = \frac{\text{number of favourable outcomes}}{\text{total number of possible outcomes}}$$

c) Compare the experimental probability to the theoretical probability. Why are they different?

Unit 5

Fraction Operations

Unscramble the letters for each puzzle. Use the clues to help you solve the puzzles.

1. TEWLSO EMRTS when the numerator and denominator of a fraction have no common factors other than 1 (two words)

2. LIBIISVED when a number divides into another number, with no remainder

3. MOOMNC TRACOF a number that will divide evenly into 2 or more numbers (two words)

Divisibility

4. a) Is 210 divisible by 2?

What is the divisibility rule for 2?

How do you know? _____

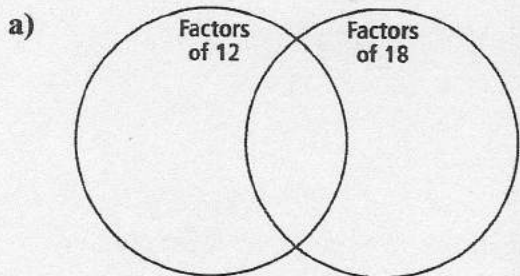
b) Is 210 divisible by 5?

How do you know? _____

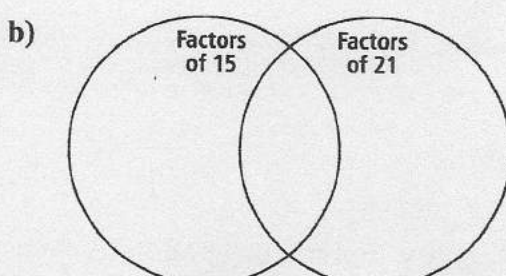
c) Is 210 divisible by 10?

How do you know? _____

5. Complete the Venn diagrams.



What is the largest number in the overlap area? _____

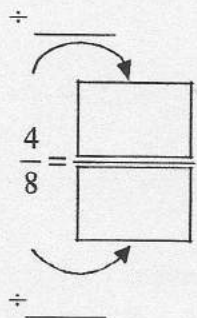


What is the greatest common factor? _____

6. Write each fraction in lowest terms.

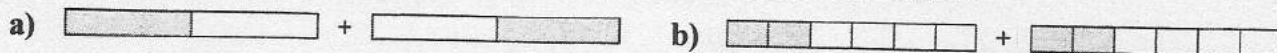
a) $\frac{4}{8}$

b) $\frac{20}{30}$



Divide both the numerator and the denominator by the greatest common factor of 4 and 8.

7. Write an addition statement. Then add. Write your answers in lowest terms.



8. Write an addition statement. Then add. Write your answers in lowest terms.



9. Add. Write your answers in lowest terms.

a) $\frac{2}{3} + \frac{1}{3}$

Add the numerators and keep the denominator.

b) $\frac{1}{12} + \frac{5}{12}$

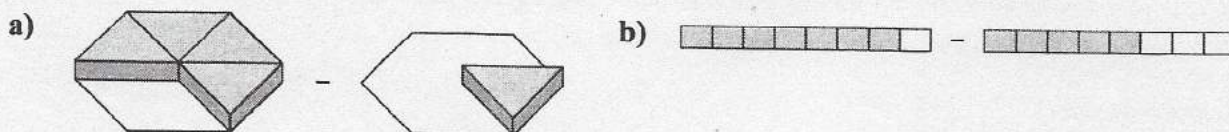
10. Two students cleaned the desks in their classroom.

Did the students clean all the desks?



Subtract Fractions With Like Denominators

11. Write a subtraction statement. Then subtract. Write your answers in lowest terms.



12. Subtract.

a) $\frac{5}{6} - \frac{5}{6}$

b) $\frac{7}{8} - \frac{3}{8}$

13. Jack is making vegetable dip for a party. A jar of mayonnaise is $\frac{4}{5}$ full. He drops it and only $\frac{1}{5}$ is left.
How much of the mayonnaise did he spill?

Adding and Subtracting Fractions

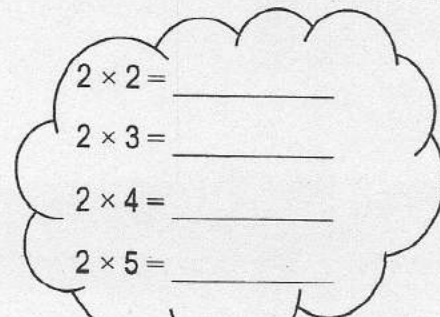
For #1 to #4, unscramble each set of letters. Use the definitions to help you.

A	B
1. the product of a given number and a natural number such as 1, 2, 3, ... _____	LTPLMUIE
2. a fraction with a numerator greater than the denominator, such as $\frac{9}{8}$ _____	EPRPORMI CNOARTIF
3. a number made up of a whole number and a fraction, such as $1\frac{1}{3}$ _____	XDEMI MNERUB
4. the common multiple of 2 or more denominators _____	MOOMNC RODEMINANOT

Common Denominators

5. Find a common multiple for 2 and 5.

Multiples of 2 are: _____



Multiples of 5 are _____.

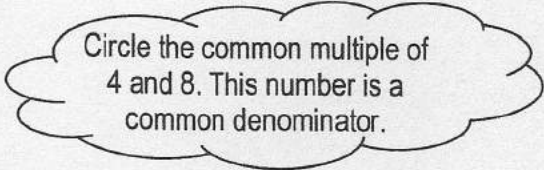
A common multiple of 2 and 5 is _____.

6. Find a common denominator for $\frac{1}{4}$ and $\frac{1}{8}$.

Multiples of 4 are _____.

Multiples of 8 are _____.

A common denominator is _____.



Circle the common multiple of
4 and 8. This number is a
common denominator.

7. a) Find a common denominator for $\frac{2}{3}$ and $\frac{7}{12}$. Use it to make equivalent fractions.

A common denominator is _____.

Equivalent fractions:

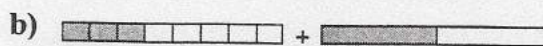
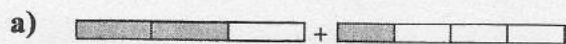
$$\frac{2}{3} = \frac{\boxed{}}{\boxed{}} \text{ and } \frac{7}{12} = \frac{\boxed{}}{\boxed{}}$$

- b) Compare the fractions.

The larger fraction is _____.

Add and Subtract Fractions With Unlike Denominators

8. Write an addition statement to represent each diagram. Then add.

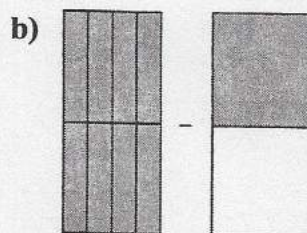
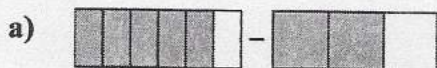


Find a common denominator.

Write equivalent fractions.

Add.

9. Write a subtraction statement to represent each diagram. Then subtract.



Find a common denominator.

Write equivalent fractions.

Subtract.

10. Add. Write each answer in lowest terms.

a) $\frac{1}{6} + \frac{1}{3}$

b) $\frac{1}{4} + \frac{1}{3}$

Find a common denominator.

Write equivalent fractions.

Add.

Write the answer in lowest terms.

11. Subtract. Write each answer in lowest terms.

a) $\frac{1}{2} - \frac{1}{6}$

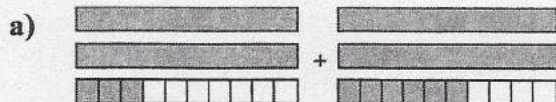
b) $\frac{3}{5} - \frac{1}{3}$

12. June-el ran for $\frac{5}{6}$ h yesterday. Today she ran for $\frac{2}{3}$ h.
How much longer did she run yesterday?

To find the *difference*,
subtract.

Add Mixed Numbers

13. Write an addition statement to represent each diagram.



14. Draw a diagram for each addition statement. What is each sum?

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

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

15. Add. Write each answer in lowest terms.

a) $2\frac{1}{8} + 2\frac{3}{8}$

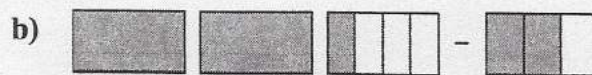
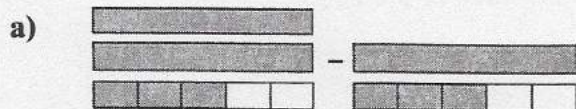
b) $3\frac{7}{10} + 1\frac{1}{5}$

Find a common denominator.

16. The painters finished painting $2\frac{1}{12}$ rooms before lunch. After lunch, they finished another $5\frac{5}{6}$ rooms. How many rooms did they paint in total?

Subtract Mixed Numbers.

17. Write a subtraction statement to represent each diagram.



18. Subtract. Write your answer in lowest terms.

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

19. Subtract. Write your answer in lowest terms.

a) $3\frac{2}{5} - 1\frac{7}{10}$

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

20. Stuart is making cookies. He has $2\frac{1}{2}$ bags of chocolate chips. He uses $1\frac{2}{3}$ bags to make the cookies. What fraction of the bag of chocolate chips is left?

Circles *Unit 4*

For #1 to #7, write the number that matches the description.

- | | | |
|--|-------|---------------------------|
| 1. The distance around the outside of a circle | _____ | A radius |
| 2. An expression for the area of a circle | _____ | B diameter |
| 3. A computer program that creates a circle graph | _____ | C circumference |
| 4. The distance from the centre of a circle to a point on the circle | _____ | D pi |
| 5. The distance across the centre of a circle | _____ | E $2 \times \pi \times r$ |
| 6. 3.14 | _____ | F spreadsheet |
| 7. An expression for the circumference of the circle | _____ | G $\pi \times r^2$ |

Construct Circles

8. Use a compass to draw a circle with a radius the length of the line segments below.

a)

b)

9. Draw a circle with each diameter.

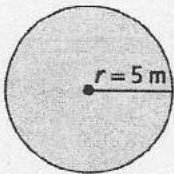
a) 5 cm

b) 40 mm

Circumference of a Circle

10. Estimate and calculate the circumference of each circle. (Round your answers to the nearest tenth).

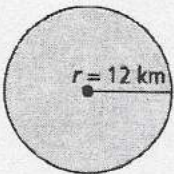
a)



Estimate:

Calculate:

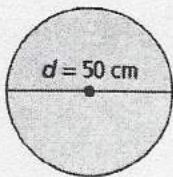
b)



Estimate:

Calculate:

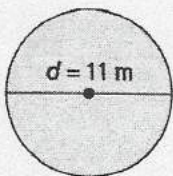
c)



Estimate:

Calculate:

d)



Estimate:

Calculate:

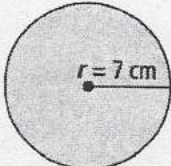
11. A round window has a diameter of 1.2 metres. Calculate the circumference of the window frame. (Round your answer to the nearest metre)

Make a sketch of the window to help you.

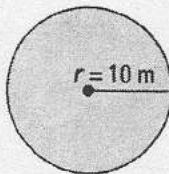
Area of a Circle

12. What is the area of each circle? (Round your answers to the nearest tenth)

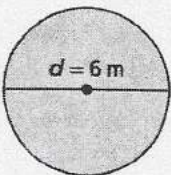
a)



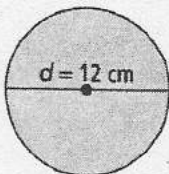
b)



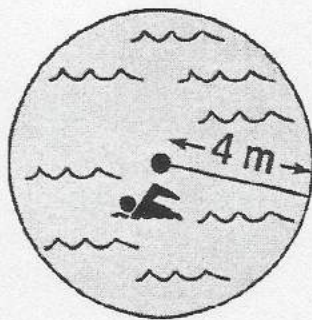
c)



d)



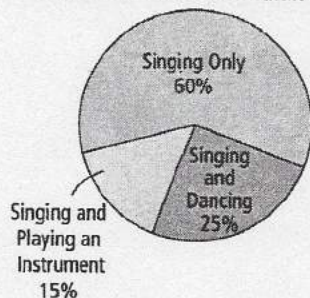
13. Trevor is shopping for a pool cover for his circular pool. The pool has a radius of 4 metres. What is the area of the pool? (Round your answer to the nearest tenth)



Interpret Circle Graphs

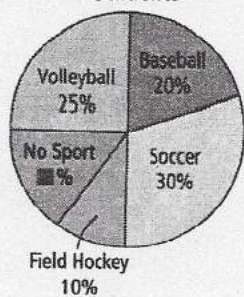
14. The circle graph shows the types of performances at a tryout for Canadian Idol. There were 1000 competitors. How many both sang and danced in their tryout?

Performances at Canadian Idol



15. Esteban made a circle graph of the sports that the students in grade 7 play.

Sports Played by Grade 7 Students



- a) What must the total percent for a circle graph be? _____
- b) What percent of the students play no sports?

- c) What 2 sports make up half (50%) of the graph?
- d) If there are 100 grade 7 students, how many play soccer?

- e) If there are 50 grade 7 students, how many play soccer?

Create Circle Graphs

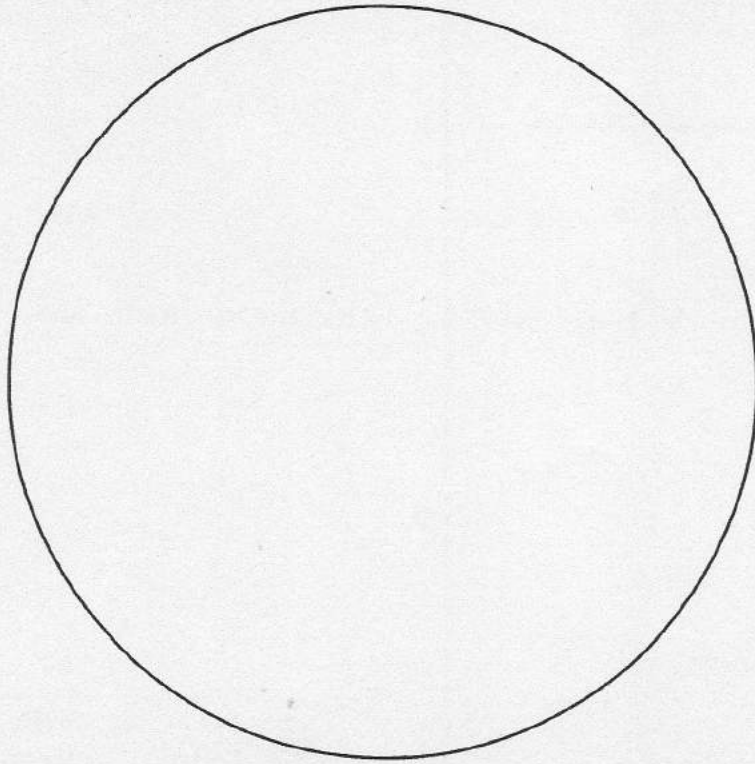
16. The table shows how much time per hour a radio station spends playing music, news, traffic, and commercials.

Type	Minutes
Music	30
News	12
Traffic	6
Commercials	12

- a) Complete the table. The first row is done for you.

Type	Minutes	Percent	Decimal	Sector Angle ($360^\circ \times \text{Decimal}$)
Music	30	$30 \div 60 \times 100$ $= 0.5 \times 100$ $= 50\%$	0.50	$360^\circ \times 0.50 = 180^\circ$
News	12			
Traffic	6			
Commercials	12			
Total	60	100%	1.0	360°

- b) Use a protractor to create a circle graph.



Unit 2

Add & Subtract Integers

Key Words

Fill in the blanks.

1. The opposite of integer +2 is integer _____.
2. In a zero pair of integer chips, one chip equals _____ and the other chip equals _____.

Explore Integer Addition

3. Write the addition statement for each diagram.

a) $\begin{array}{c} \oplus \oplus \oplus \oplus \oplus \oplus \oplus \\ \ominus \ominus \ominus \ominus \end{array}$

b) $\begin{array}{c} \ominus \ominus \ominus \ominus \ominus \ominus \ominus \\ \oplus \oplus \oplus \oplus \oplus \end{array}$

$$(-7) + (\quad) = \underline{\hspace{2cm}}$$

4. Add using integer chips.

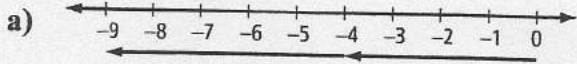
a) $(-5) + (-3) =$

b) $(+4) + (-4) =$

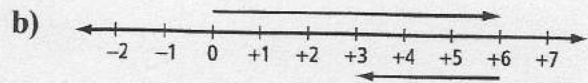
5. A pelican was flying 4 m above the ocean. The pelican dove 6 m down and caught a fish. Write the addition statement and solve.

Add Integers

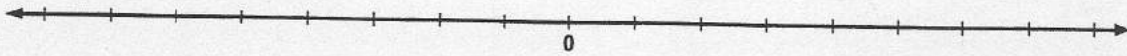
6. Write the addition statement for each number line.



$$(-4) + (\quad) = \underline{\hspace{2cm}}$$



7. Add using a number line.



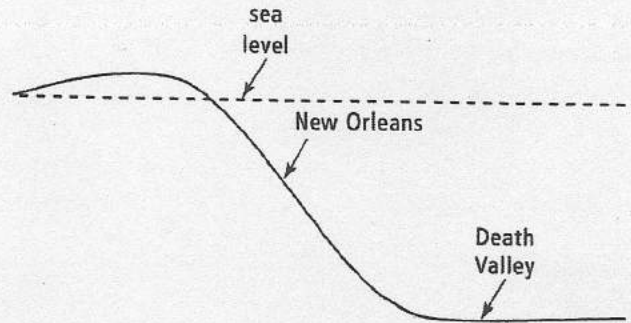
a) $(-3) + (+3) =$

b) $(+7) + (-2) =$

c) $(-4) + (+12) =$

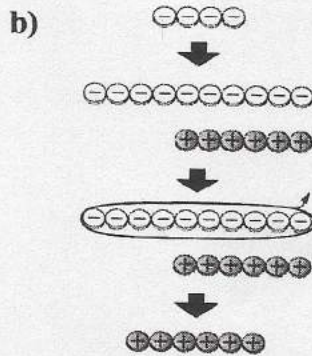
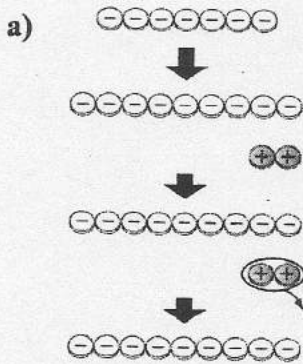
d) $(+6) + (-8) =$

8. Death Valley, California, is 86 m below sea level. New Orleans, Louisiana, is 84 m higher than Death Valley. What is the elevation of New Orleans?



Explore Integer Subtraction

9. Write the subtraction statement for each set of diagrams.



$(-7) - \underline{\quad} = \underline{\quad}$

10. Subtract using integer chips.

a) $(-7) - (-5) =$

b) $(+4) - (-3) =$

c) $(+3) - (+8) =$

d) $(-1) - (+6) =$

11. Quaid owes the store \$7. Heidi owes the store \$3. How much more does Quaid owe than Heidi? Write a subtraction statement.

Add the
opposite.

Subtract Integers

12. Fill in the blanks by adding the opposites.

a) $(+4) - (+7)$

$= (+4) + (\quad)$

$=$

b) $(-6) - (-4)$

$= (-6) + (\quad)$

$=$

c) $(+3) - (-2)$

d) $(-7) - (+8)$

13. Subtract.

a) $(+5) - (+8)$

b) $(-4) - (-6)$

c) $(-2) - (+7)$

d) $(+4) - (-9)$

14. Mount Everest is 8848 m above sea level. The Dead Sea is 411 m below sea level.
What is the difference between the two? Show your work.

Use +8848 m and
-411 m.

Apply Integer Operations

15. Complete the pattern.

a) +3, +9, +15, +21, _____, _____, _____ b) +40, +30, +20, +10, _____, _____, _____

16. Use the table to answer the questions.

Round	Number of Strokes Above or Below Par
1	-2
2	-4
3	+3
4	-4

- a) Par for a round of golf is 72. What did Mike Weir score in Round 1?

$(+72) + (\text{_____}) = \text{_____}$

- b) What is the difference between Rounds 2 and 3?

Unit 1 Patterns & Expressions

For #1 and #2, circle the best answer.

1. In $3x - 5$, x is a **variable** or **constant**.
2. In $n - 4$, the number 4 is called a **variable** or **constant**.

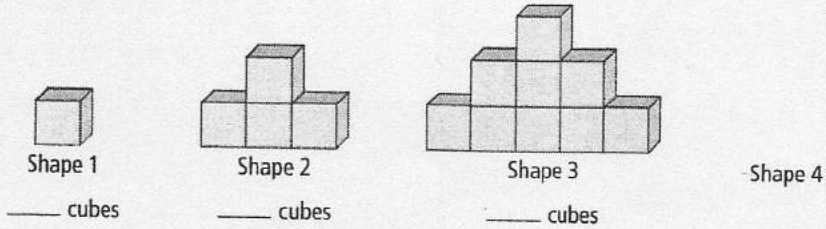
For #3 and #4, fill in the blanks.

3. In $10f + 1$, the constant is _____.
4. In $3a + 7$, the variable is _____.

Describe Patterns

5. Nikola built a pattern of cubes.

a) Draw Shape 4.



b) How many cubes would be in Shape 5? _____

6. a) Complete the table.

b) Write $0.\bar{8}$ in fraction form _____

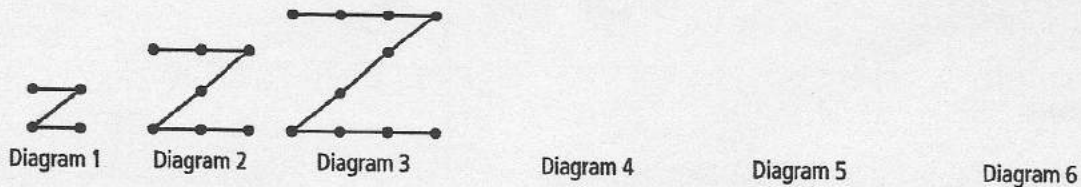
Fraction	Repeating Decimal	Bar Notation
$\frac{1}{9}$	0.111...	$0.\bar{1}$
$\frac{2}{9}$		
$\frac{3}{9}$		
$\frac{4}{9}$		
$\frac{5}{9}$		

c) Write $\frac{7}{9}$ as a repeating decimal. _____

d) Write 0.666... in fraction form. _____

7. The letter Z is constructed with dots.

a) Draw the next 3 diagrams.



b) Complete the table.

Diagram	1	2	3	4	5	6
Number of Dots						

c) The number of dots increases _____ by from one diagram to the next.

d) How many dots are in Diagram 8? _____

Variables and Expressions

8. Choose an expression from the box to match the words.

a) a number increased by 5 _____

b) a number decreased by 6 _____

c) a number multiplied by 4 _____

d) a number divided by 2 _____

e) 8 subtracted from a number _____

f) the sum of 5 and a number _____

g) a number subtracted from 9 _____

h) 5 divided by a number _____

$x - 6$	$\frac{x}{2}$	$x + 5$
$n - 8$	$\frac{5}{k}$	$5 + y$
$4n$	$9 - m$	

9. Write an expression for each question using a constant and a variable.

a) Some birds are sitting in a tree. Five fly away.

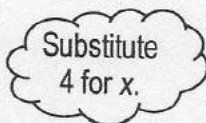
If b represents the number of birds in the tree, the expression is _____

b) One can of soup costs y . How much does 8 cans of soup cost?

If _____ represents the cost of one can of soup, the expression is _____

Evaluate Expressions

10. Solve $3x + 2$ if $x = 4$.



11. Naveed sells samosas for \$2.50 each.

a) Complete the table.

Number of Samosas	Cost (\$)
1	2.50
2	
3	
4	
5	
6	

b) If n = number of samosas, what is the expression for the cost?

c) How much would 7 samosas cost?

12. Solve.

a) $d - 4$, when $d = 10$

b) $3x$, when $x = 7$

c) $2(t^2)$, when $t = 3$

$$= 2 \times 3^2$$

$$= 2 \times \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

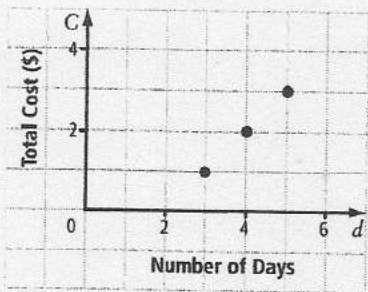
3^2 means 3×3

d) $2x + 5$, when $x = 5$

Graph Linear Relations

13. To play the online computer game *Mystic Relics*, the first 3 days cost \$1. Each day after that costs \$1.

a) Fill in the table of values.



Number of Days (d)	Total Cost (C)	Ordered Pairs (d, C)
3	1	
4		
	3	

b) Write an expression for d and C .

$$C = d - \underline{\hspace{2cm}}$$

c) If you play for 6 days, how much would it cost?

Use your expression and substitute $d = 6$.

Unit 6 Solving Equations

Key Words

Fill in the blanks.

1. Examples of opposite operations are

a) subtract and

b) and divide

2. An _____ is made up of two expressions that are equal in value to each other.

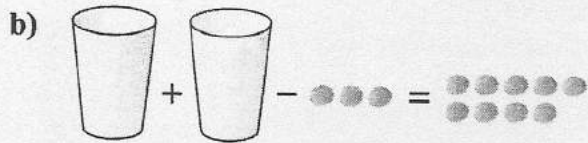
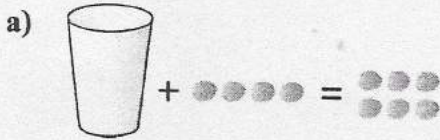
Expressions and Equations

3. Draw a diagram to show each expression or equation.

a) $x + 3$

b) $2r - 3 = 9$

4. Write the equation for each model.



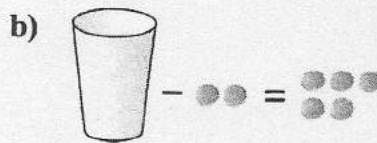
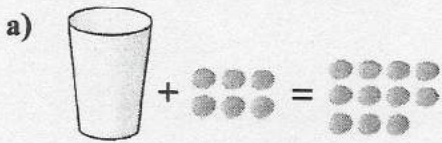
5. Write an equation for each situation.

a) 3 times Kyra's age minus 1 year equals 22.

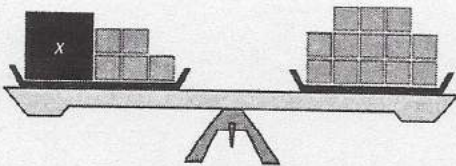
b) Sean's height divided by 2 equals 75.

Solve One-Step Equations: $x + a = b$

6. How many counters are in each cup to make the equation true?



7. What value of x will keep the scale balanced?



To keep the scale balanced, what you do to one side, you *must* do to the other side.

8. Solve by inspection.

a) $w + 5 = 11$

b) $f - 3 = 5$

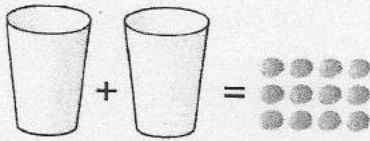
9. At the Winter Olympics in Torino, Italy, Canada won 10 more medals than Sweden. Canada won 24 medals. How many medals did Sweden win?

a) Write the equation.

b) Solve your equation.

Solve One-Step Equations: $ax = b$, $\frac{x}{a} = b$

10. How many counters are in each cup?



11. Solve by inspection.

a) $3r = 18$

b) $\frac{p}{8} = 4$

c) $35 = 5w$

d) $11 = \frac{c}{6}$

12. Solve each equation. Check your answer.

a) $3x = 12$

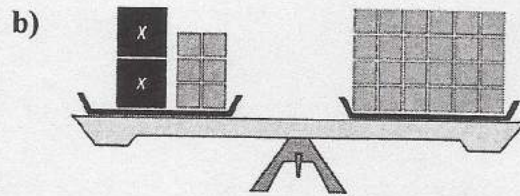
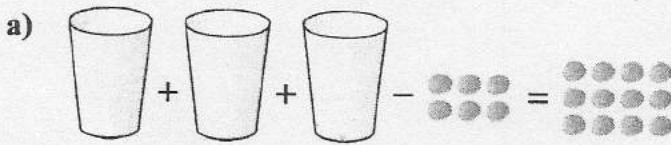
b) $\frac{v}{5} = 7$

13. Sophie's age is one third Ryan's age. Sophie is 21. How old is Ryan?

- a) Write the equation for this situation:
- b) Solve the equation.

Solve Two-Step Equations: $ax + b = c$

14. Write the equation for each diagram and solve.



15. Solve each equation. Check your answers.

a) $2g + 8 = 32$

b) $3x - 5 = 85$

Unit 7

Working with Data

Key Words

1. Draw a line to match the word on the right with the best definition on the left.

- | | |
|---|---------|
| a) another name for the mean | mode |
| b) the difference between the largest number and the smallest number | median |
| c) the value in the middle when the numbers are arranged from smallest to largest | mean |
| d) all of the numbers added together divided by the number of values | average |
| e) the number that occurs most often | range |

Median and Mode

2. Jessica made 5, 9, 8, 5, and 6 phone calls in the last 5 days.
- What is the mode? _____
 - What is the median? _____

Arrange the numbers
in order, then find the
middle value.

Mean

3. One year, school in Nunavut was cancelled 7 times due to blizzards. The blizzards lasted 1, 3, 2, 3, 5, 2, and 3 days. What was the mean length of a blizzard that year?
4. The Wong family drove for 3 days to get to California. The trip was 2100 km total. What is the average distance that they travelled each day?

Range and Outliers

5. The table shows the number of forest fires caused by humans in the 4 western provinces in 1 year.

Province	British Columbia	Alberta	Saskatchewan	Manitoba
Fires Set	644	336	239	203

- What province had the highest value? _____
- What province had the lowest value? _____
- What is the range of the numbers? _____ - _____ = _____
- Which number might be an outlier? _____

Explain your answer. _____

The Effects of Outliers

6. Look at your answers for #5.
- What effect does the outlier have on the median? _____

- b) What effect does the outlier have on the mean? _____
- c) Was the median or the mean affected the most?

Choose the Best Measure of Central Tendency

7. In the past 7 days, Linda has received the following number of e-mails:

Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat
E-mails	3	34	7	9	9	6	5

- a) What is the median?
- b) What is the mean?
- c) Which measure best explains the data? _____

Explain. _____

8. Gillian's school collected cans of food for a local food bank. The classes each collected 20, 15, 12, 14, and 39 cans.

- a) What is the median for the school?
- b) What is the mean for the school?
- c) Which measure best represents the data? _____