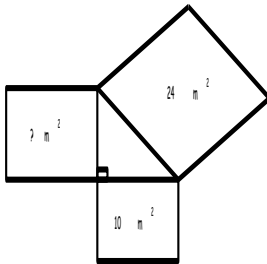


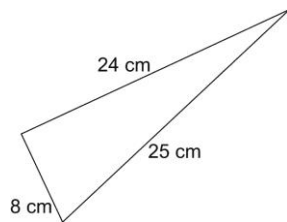
Grade Eight Mathematics 2015-2016 Final Exam Review

Chapter 1: Square Roots and the Pythagoras Theorem

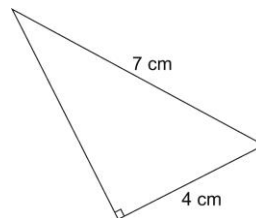
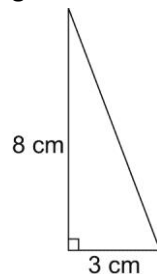
1. Which number has a square root of 9?
2. What is the square root of 169?
3. Which pair of whole numbers is $\sqrt{87}$ in between?
4. Calculate $\sqrt{16}$, $\sqrt{25}$, $\sqrt{50}$, and $\sqrt{63}$
5. Estimate $\sqrt{52}$ to one decimal place.
6. What is the missing area of the square in the diagram below?



7. If $h^2 = 5^2 + 4^2$, then the value of $h^2 = \underline{\hspace{1cm}}$?
8. Is 5, 8, 10 a Pythagorean triple?
9. Is the following triangle a right triangle? Explain.

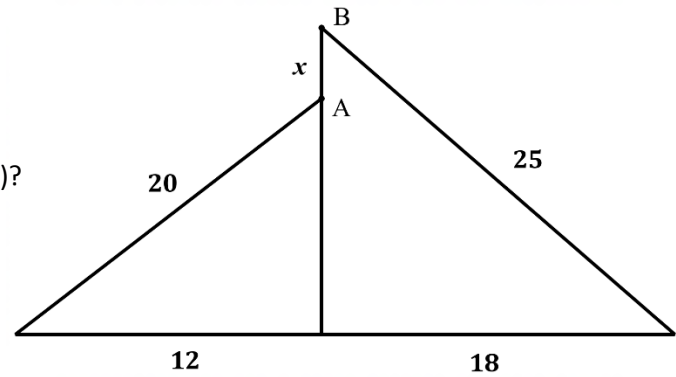


10. Find the length of the missing side in each triangle.



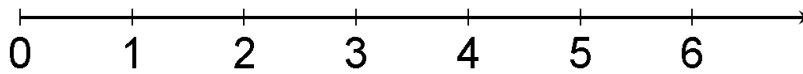
11. A cat is stranded 15 m up a tree. You lean a 20 m ladder against the tree so that it reaches the height of the cat. How far from the base of the tree is the ladder?

12. What is the length of segment x (distance from A to B)?



13. A football field is 40m wide and 100m long. If Jake runs from corner to corner twenty times, how far has he run?

14. Where do these square roots $\sqrt{10}$, $\sqrt{36}$, $\sqrt{4}$, $\sqrt{20}$, $\sqrt{12}$, and $\sqrt{25}$ belong on the number line?



14. A farmer has a *square* field next to his house that has an area of 256 m^2 .

A) What is the length of each side of the piece of land?

B) How many meters of fence will the farmer need to fence in the four sides of the field?

C) If fencing costs 8 \$/m how much money will the farmer spend on fencing?

Chapter Two: Integers

1. Evaluate: A) $(-4) \times (-2)$ B) $(+6) \times (+3)$ C) $(-3) \times (+5)$ D) $(+5) \times (-2)$

2. Evaluate: A) $(-6) \div (-2)$ B) $(+15) \div (-3)$ C) $(+8) \div (+2)$ D) $(-12) \div (+6)$

3. Evaluate: A) $(-84) \div (-14)$ B) $\frac{-78}{+13}$ C) $(-36) \div (-4)$

4. Replace the blank ____ with an integer which will make the equation true.

A) $(-3) \times \underline{\hspace{1cm}} = (-15)$

B) $\underline{\hspace{1cm}} \div (-7) = (+6)$

C) $(-2) \times \underline{\hspace{1cm}} \times (-6) = -60$

5. Determine where to place a set of brackets so that expression $(-5) + (-10) \div (-3)$ equals 5.

6. Evaluate:

A) $-7(+3)$

B) $(+2)(-12)(+5)$

C) $(-3)(-8)$

D) $\frac{-40}{+8}$

E) $(-30) \div (+3)$

F) $(-3)(-8)$

G) $(-35) \div (-5)$

H) $5(-4)(0)(+3)$

I) $(-6) - (+56) \div (-8)$

J) $(-3) \times (+4) \times (+2)$

K) $(-5) \times (+10) \times (-2)$

L) $(+12)(-2) \div (-6) + (-3)$

M) $[(-3) + (-5) \times (-3)] \div [(-8) \div (+4)]$

N) $(+9) + (-72) \div (+9)$

O) $\frac{(-3)(-8)}{(+4)}$

P) $\frac{(-7)^2 - (+3)^2}{(-10)} + 4$

Q) $(-2)(+3) - [(-10) \div (-5)] + (-4)$

R) $\frac{(+6) - [(-2) \times (+4)]}{(+7) + (-5)}$

8. Sarah deposited \$15 in her bank account each week until she got \$240. How many weeks will it take her to save up the money?

9. Find the mean high temperature for last week if the daily highs were 0°C , -3°C , -5°C , 4°C , 3°C , -9°C , and -11°C .

10. Frank owes four people \$52. Assuming he owes each person the same amount of money, how much does he owe each person?

11. The water in Ryan's well dropped 5 cm a day for 2 weeks straight. Write, and solve, a multiplication statement that will show the total drop in the water level.

Chapter Three: Operations With Fractions

1. Reduce these fractions to simplest form. A) $\frac{32}{40}$ B) $\frac{12}{66}$ C) $\frac{105}{93}$

2. Write two equivalent fractions for each of these fractions. A) $\frac{2}{3}$ B) $\frac{6}{7}$

3. Convert these improper fractions into mixed numbers A) $\frac{40}{32}$ B) $\frac{17}{5}$ C) $\frac{12}{10}$

4. Write these mixed numbers as improper fractions. A) $3\frac{3}{4}$ B) $2\frac{2}{7}$ C) $5\frac{10}{11}$

5. Write the reciprocal of each fraction. A) $\frac{8}{9}$ B) $5\frac{1}{3}$ C) 6

6. Write each repeated addition as a multiplication statement, and then solve it.

A) $\frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5}$ B) $\frac{4}{7} + \frac{4}{7} + \frac{4}{7} + \frac{4}{7} + \frac{4}{7} + \frac{4}{7}$

7. Use the model of your choice to determine the answer to each of the following.

A) $4 \times \frac{3}{5}$ B) $\frac{2}{3} \times \frac{4}{5}$ C) $\frac{7}{8} \div \frac{1}{2}$

8. Show how the area model can be used to find the product of $1\frac{1}{4} \times 2\frac{1}{3}$.

9. Using benchmarks what is the best estimate for A) $2\frac{8}{9} \div \frac{7}{12}$ B) $1\frac{1}{20} \times \frac{9}{10}$?

10. Find each of these products. Write answers in simplest form when necessary.

A) $\frac{3}{7} \times 8$ B) $2 \times \frac{7}{12}$ C) $3 \times \frac{1}{2}$ D) $\frac{3}{7} \times \frac{8}{9}$ E) $2\frac{1}{3} \times \frac{7}{20}$ F) $3\frac{2}{5} \times 1\frac{1}{2}$

11. Find each quotient.

A) $\frac{5}{8} \div \frac{1}{2}$ B) $1\frac{1}{4} \div 2\frac{1}{3}$ C) $4 \div \frac{1}{2}$ D) $\frac{2}{5} \div \frac{2}{3}$ E) $30 \div 2\frac{7}{8}$ F) $\frac{3}{4} \div 16$

12. Evaluate each of the following. Write answers in simplest form when necessary.

A) $\frac{4}{5} + \frac{2}{3} \times \frac{3}{4}$ B) $\frac{2}{3} + \frac{3}{4} \div 3$ C) $1\frac{2}{5} \div \left[\frac{2}{3} + \frac{1}{4}\right]$ D) $\left(\frac{1}{3} + \frac{2}{5}\right) \times \frac{3}{7} \div \frac{1}{5}$

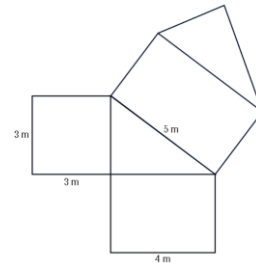
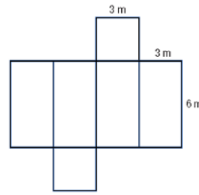
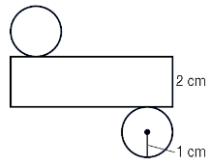
13. How many full pieces of wood $\frac{3}{5}$ of a meter long can be cut from a piece 6 m long?

14. On the last math test, $\frac{3}{5}$ of a class of grade 8 students got 80% or higher. If $\frac{2}{3}$ of the students with 80% or higher are female, what fraction of the class that are female got 80% or higher?

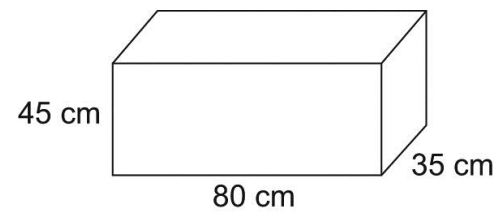
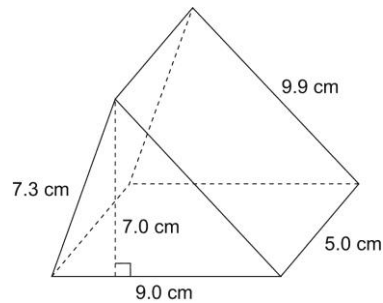
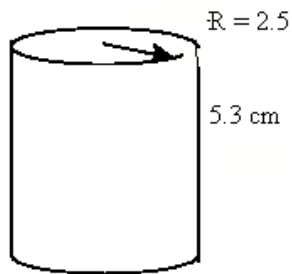
15. Each piece of fencing is $5\frac{1}{2}$ meters long. If James builds a fence around his garden that uses $42\frac{2}{3}$ metres of material. How many pieces of fencing does James need?

Chapter Four: Measuring Prisms and Cylinders

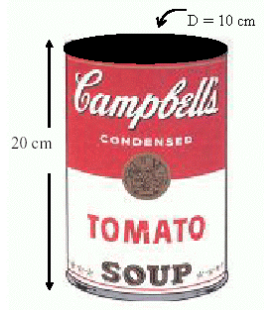
1. What 3D object will the following nets create?



3. Find the surface area and volume of the objects below.



3. How much paper is used to create the label on the soup can?



4. A fuel storage tank has a diameter of 40 meters and a height of 80 meters.

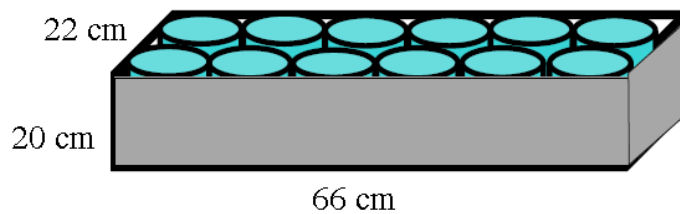
A) Find the surface area of the tank.

B) If a gallon of paint can cover about 40 square meters, about how many gallons are needed to apply **two coats** of paint to the **exposed sides and top** of one tank?



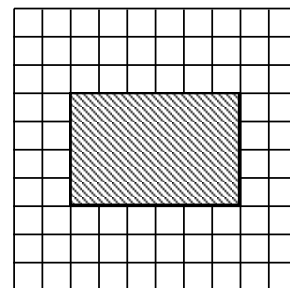
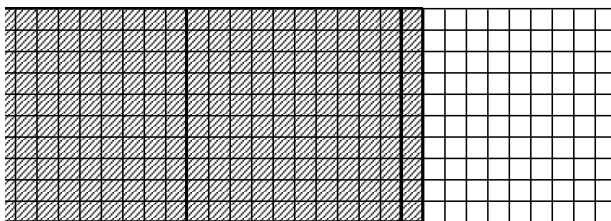
5. Kim's Ice Cream store packs its treat into cylindrical tubs that are 20 cm in diameter and 30 cm tall.
- How many cm^3 of ice cream does a tub hold?
 - Kim's sells ice cream in cylindrical scoops. If each scoop has base radius 2 cm and height 6 cm, what is the volume of a single scoop?
 - How many scoops of ice cream are in a tub?

6. A cardboard box is built to hold cans of soup. How much cardboard is used to build the box?

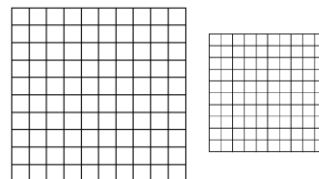


Unit 5: Percent, Ratio and Rate

1. What fraction of the two charts below are shaded? Write each fraction as a percent.



2. Use the diagram on the above right to represent 27.13%



3. Change each percent to a decimal: A) 38 % _____ B) 123.5 % _____

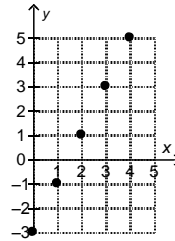
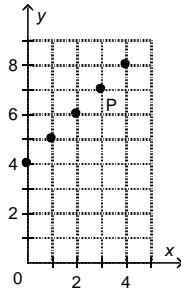
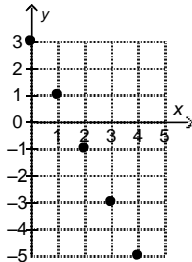
4. Change each decimal to a percent: A) 0.03 _____ B) 0.125 _____
5. Change each decimal to a fraction: A) 0.55 _____ B) 3.5 _____
6. Change each fraction to a decimal: A) $\frac{2}{8}$ _____ B) $\frac{40}{30}$ _____
7. Change each fraction to a percent. A) $\frac{9}{10}$ _____ B) $\frac{1}{250}$ _____
8. Change each percent to a fraction A) 3 % _____ B) 0.4 % _____
9. The sales taxes of a province are 8%. How much tax do you pay on a \$59.10 purchase?
10. The regular price of a watch is \$24.99. It is on sale at a discount of 35%. Find the watch's sale price.
11. Caitlin planned for a vacation and checked for exchange rates. She noted that \$1 Can was worth 0.66 euro. How many Euros would she get for \$30 Canadian?
12. A 25-L container of water costs \$18.75. What is the cost per litre?
13. A dozen apples cost \$2.35. How much will 8 apples cost?
14. In 2 stores, the same detergent is on special. Which store offers the best buy? 6 bottles for \$12.48 or 7 bottles for \$14.42
15. A charity run had 1650 people registered. Of these, about 0.8% finished the race in less than 45 min. How many people completed the run in less than 45 min?
16. A bike is on sale for \$646. This is 15% off the regular price. What is the regular price of the bike?
17. The attendance on the first night of the school concert was 375. The attendance on the second night was 420. What was the percent increase in attendance?

18. A sweater regularly priced at \$135 is on sale at 15% off. Determine the sale price of the sweater. How much would you pay for the sweater, including taxes of 12%?
19. Laura types 240 words in 3 min. What is her unit rate of typing?
20. A bag contains 4 red, 6 blue, and 3 yellow balls. What is the ratio of blue to non-blue balls?
21. Write the ratio 16:24 in simplest form.
22. Write the part-to-part ratio 11:13 as a part-to-whole ratio.
23. Find the value of the variable. $8:7 = p:56$
24. The ratio for a team of win to loss is 5:4. If the team played 90 games, how many games did they win?
25. Bob is on a baseball team where the ratio of left-handed pitchers to right-handed pitchers is 2:5. If there are 20 pitchers on the team, how many will be right-handed?
26. A bag contains red, green, and blue balls in the ratio 8:6:7.
- A) If there are 32 red balls, how many green balls and blue balls are in the bag?
- B) What is the percent of red balls in the bag?

Unit 6: Solving Equations and Graphing Linear Relations

1. The ordered pair $(5, ?)$ is in the linear relation with equation $y = -2x + 8$. Find the missing number.

2. Describe the relationship between the variables x and y for each graph.



3. Expand each using the distributive property: A) $-5(4 + y)$ B) $10(x - 14)$

4. Four more than three times a number is 16. Let n represent the number. Solve for n .

5. Write and solve an equation for this sentence. The sum of 4 and one-third of a number is 9.

6. Use a model to solve each equation. Verify the solution.

A) $2(x - 3) = -8$

B) $-3x + 6 = -9$

7. Solve each of the following equations algebraically.

A) $-3x = 30$

B) $2x = -24$

C) $\frac{x}{2} = 3$

D) $\frac{x}{-3} = -6$

E) $4x - 2 = -10$

F) $5 = -4x - 7$

G) $\frac{x}{4} - 7 = -17$

H) $6 = 35 + \frac{x}{-2}$

I) $-21 + \frac{m}{-12} = -28$

J) $-5(2x - 2) = 20$

K) $-6(4x + 3) = 54$

8. Janine took one-quarter of the cookies out of the cookie jar and ate them. She then took out an additional 3 cookies to give to her sister. If 12 cookies were taken out of the jar in total, how many were in the jar at the start? Write an equation you can use to solve the problem. Solve the equation. Verify the solution.
9. The Grade 8 students had a graduation dinner. They paid a flat rate of \$150 for the use of the hall, plus \$12 for each student who attended. The total cost of the dinner was \$774. How many students attended the dinner? Write an equation you can use to solve the problem. Solve the equation. Verify the solution.
10. Samara chose an integer. She added 7, then multiplied the sum by 3. The product was 12. Which integer did Heather choose? Write an equation, solve, and verify the solution.

Unit 7: Data Analysis and Probability Test

1. We studied: line graphs, bar graphs, double line/bar graphs, circle graphs, and a pictographs
 - A) Briefly describe the purpose of each graph
 - B) Give two advantages of each graph
 - C) Give two disadvantages of each graph.
2. Julia has 10 loonies, 4 toonies and 6 quarters in her purse. She removes a coin from her purse without looking, notes the value, then returns the coin to her purse. What is the probability of selecting:

A) a toonie B) a quarter C) two loonies D) a toonie, then a loonie?
3. What are the odds of rolling two ones in a row on a standard six sided die?
4. A bag contains 4 red marbles, 3 blue marbles, 2 white marbles, and 6 green marbles. A marble is removed without looking, its color is recorded, and then returned to the bag. Find each probability.

A) Removing a blue marble, then a green marble, then a white marble.

B) Removing a marble that is not green two times.

C) Removing a white marble, then two red marbles, then a green marble.

D) Removing a green marble, then a red marble, then a yellow marble, then a blue marble.

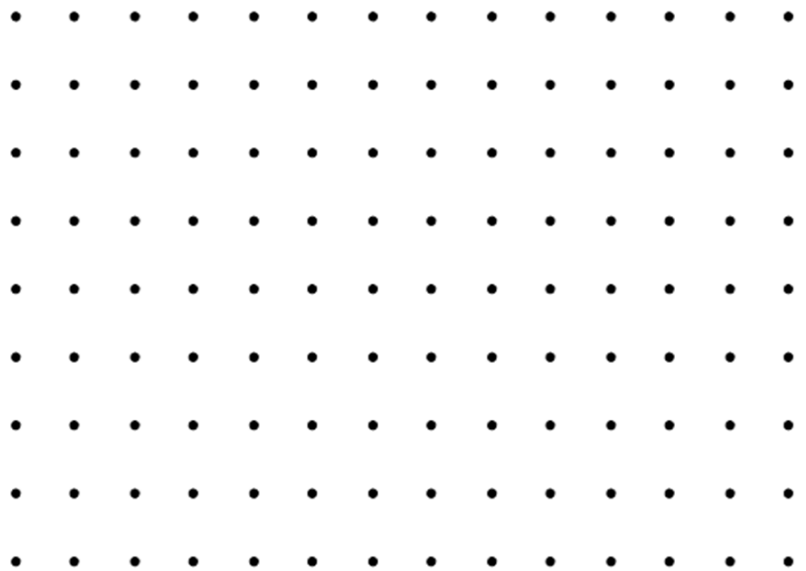
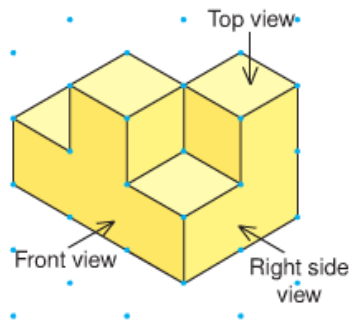
Unit 8:

1. Use the following table. Indicate combinations of regular polygons that will tessellate and use workings to explain your answers. You can use a shape more than once.

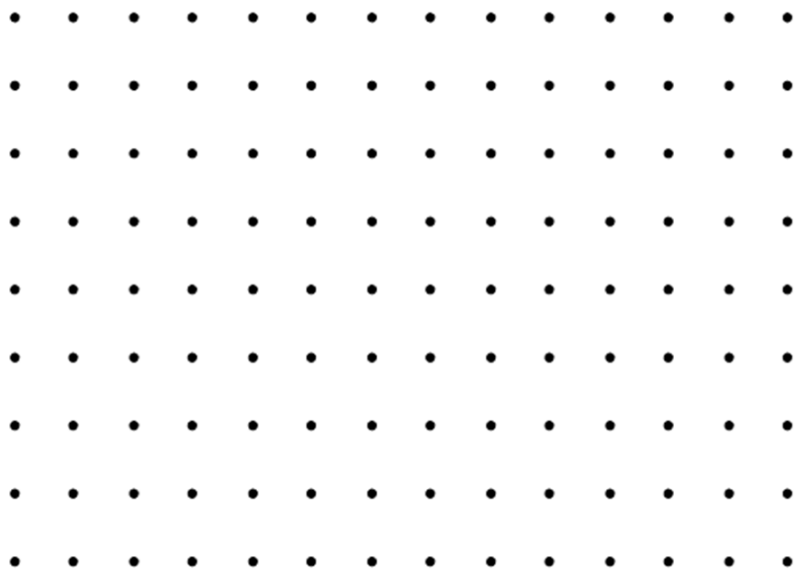
Polygon	Interior Angle Measure
Triangle	60
Square	90
Pentagon	108
Hexagon	120
Octagon	135
Decagon	144
Dodecagon	150

One Shape: _____ Three Shapes _____
Two Shapes: _____

2. Sketch the front, top, and side views of the object on the below left.



b. Rotate the object above 180 degrees clockwise. Draw the four views.



3. Build the object below. Rotate it 90 degrees away from you about a horizontal axis. Draw the 4 new views.

