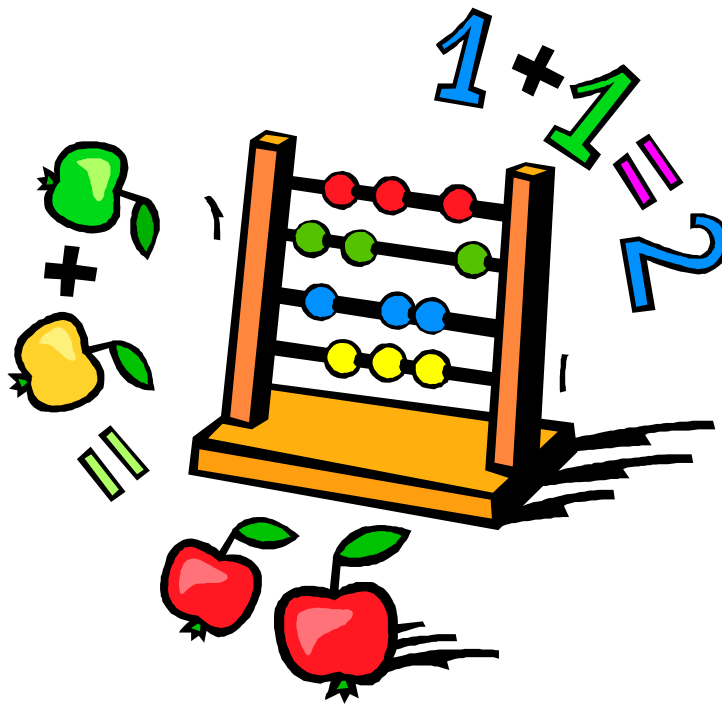


End of Grade 8 I.R.P.

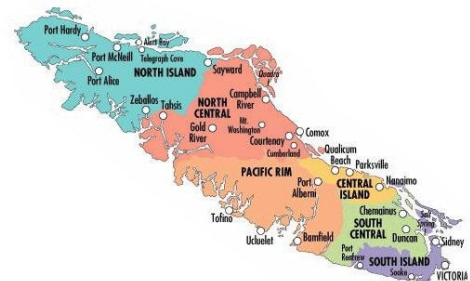
Beginning of Grade 9

Diagnostic Math Assessment

Last updated: March 4, 2009



WNCP
Edition



1) Which of these numbers is NOT a perfect square?

- A 196
- B 256
- C 476
- D 676

2) $\sqrt{550}$ is between which 2 numbers?

- A 22 and 23
- B 23 and 24
- C 225 and 300
- D 500 and 600

3) What is the ratio of cities in Saskatchewan to Alberta?

- A 1:2
- B 2:1
- C 3:4
- D 4:3

Province	# of Cities
Alberta	16
New Brunswick	6
Saskatchewan	12

- 4) Seven students were away from school.
This was 25% of the class.
How many students, in total, are enrolled in the class?

- A 21
- B 25
- C 28
- D 32

- 5) A jacket costs \$80.00.
GST is 6%.
How much do you pay for the jacket including GST?

- A \$72.00
- B \$84.80
- C \$86.00
- D \$128.00



- 6) There are $5\frac{1}{2}$ pizzas to be shared equally by 6 people.

What fraction of a pizza does each person receive?









- A $\frac{5}{6}$
- B $\frac{7}{8}$
- C $\frac{9}{10}$
- D $\frac{11}{12}$

7) Jeff bought a \$5 000 savings bond that paid 7% interest per year.
How much will Jeff have (including simple interest) after 4 years?

- A \$1400.00
- B \$3600.00
- C \$5350.00
- D \$6400.00

8)

Lemonade Recipe

Water -			
Lemon juice -			
Sugar -			
Ice -			
		= 250 ml	

How many measuring cups of lemon juice are needed for 9 measuring cups of water?

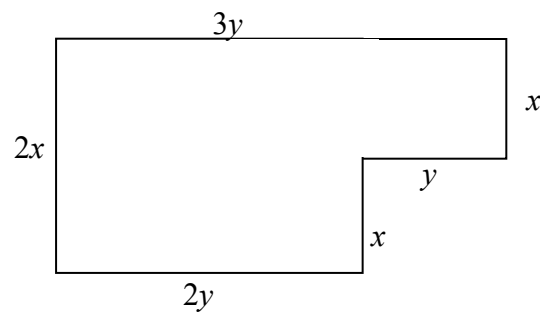
- A 1
- B 5
- C 6
- D 7

9) What is the value of $\frac{4m+5k}{k}$ if $m = 3$ and $k = (-2)$?

- A -11
- B -1
- C 1
- D 11

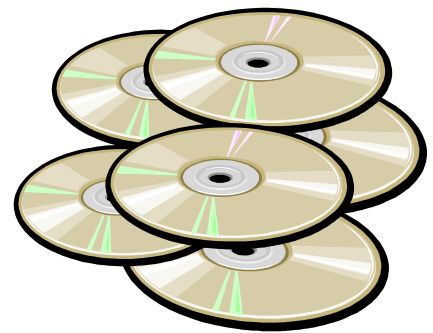
10) Which of the expressions below represents the perimeter of the figure?

- A $4x + 6y$
- B $7 + 3x + 3y$
- C $10xy$
- D $2x + 5y + 2xy$



11) Peter has CDs and DVDs.
He has 12 more DVDs than twice the number of CDs.
He has 42 DVDs.
How many CDs does he have?

- A 15
- B 27
- C 30
- D 54

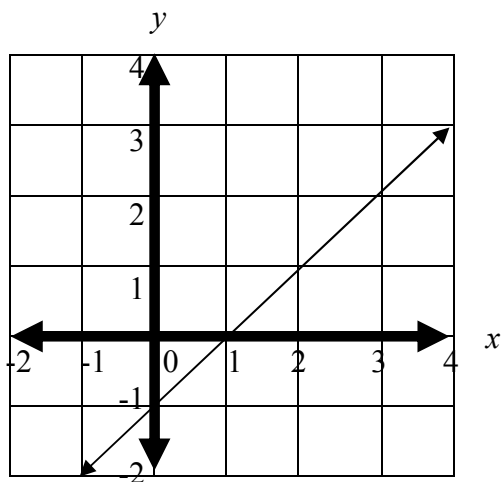


12) It costs \$24.00 for sixteen blank CDs. What is the cost of five CDs?

- A \$1.50
- B \$4.50
- C \$7.50
- D \$16.50

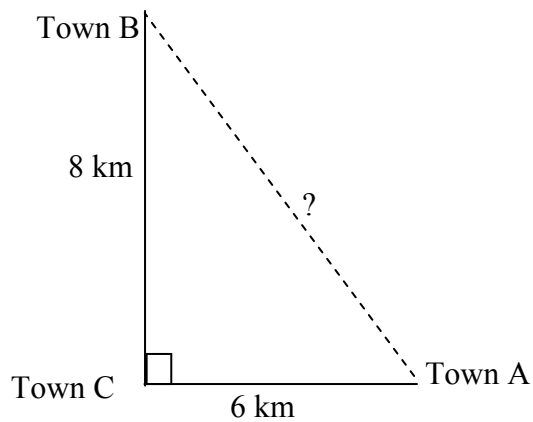
13) Which equation describes the graph below?

- A $x + 1 = y$
- B $x - 1 = y$
- C $1 - x = y$
- D $x + y = 1$



14) What is the shortest distance from Town A to Town B? ($a^2 + b^2 = c^2$)

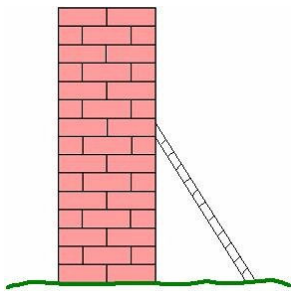
- A 9 km
- B 10 km
- C 14 km
- D 100 km



15) There are 12 girls and 18 boys in the class.
What percent of the class are boys?

- A 12 %
- B 18 %
- C 40 %
- D 60 %

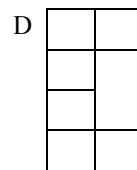
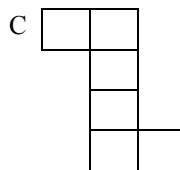
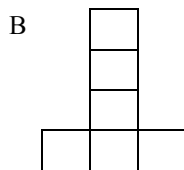
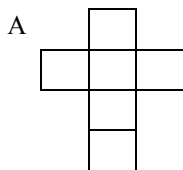
16)



A 6 m ladder is leaning against a wall.
The top of the ladder is 5 m up the wall.
How far from the base of the wall is the foot of the ladder?

- A 1.0 m
- B 3.3 m
- C 4.0 m
- D 7.8 m

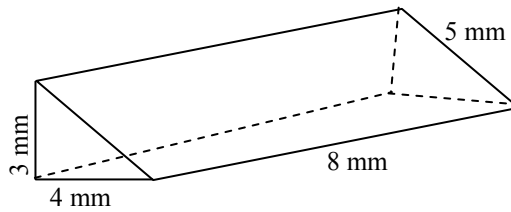
17)



Which is NOT a net of a cube?

- A Net A
- B Net B
- C Net C
- D Net D

18)

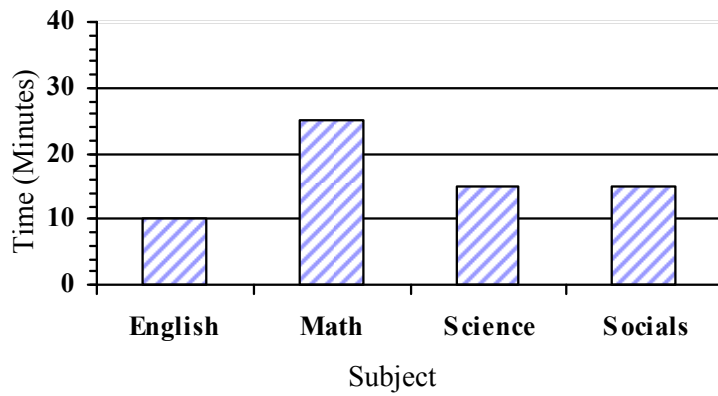


What is the surface area of the right triangular prism?

- A 20 mm^2
- B 96 mm^2
- C 108 mm^2
- D 120 mm^2

19)

Time Spent on Homework



Which conclusion can be drawn from this graph?

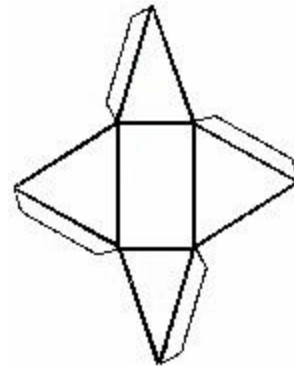
- A English homework was done first.
- B Less than one hour was spent on homework.
- C More than one hour was spent on homework.
- D Science and Socials had the same number of questions to complete.

20) Which quadrilateral has only one set of parallel sides and congruent diagonals?

- A kite
- B parallelogram
- C rhombus
- D isosceles trapezoid

21) Name the geometric solid formed by the net shown at the right.

- A Triangular pyramid
- B Rectangular pyramid
- C Triangular prism
- D Rectangular prism



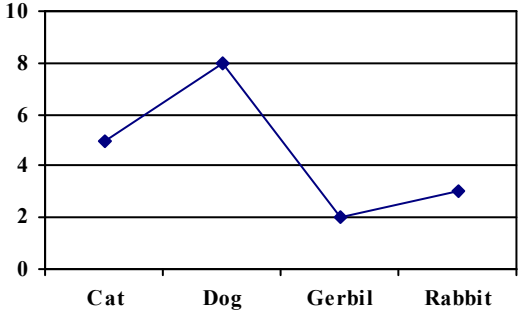
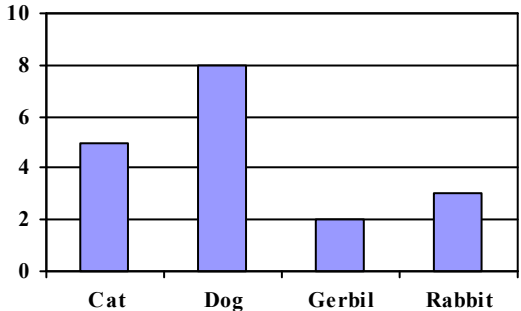
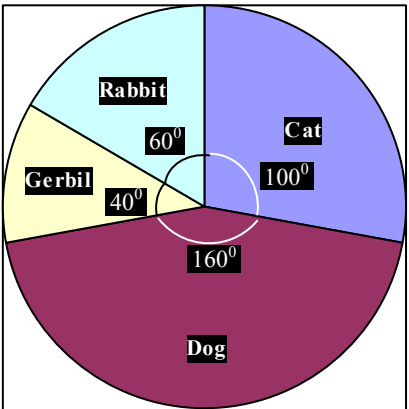
22) Which of the following surveys is fair or unbiased?

- A Surveying 200 random people from your town to find out if there is community support for a skate park.
- B Surveying people watching a Canucks game to find out Canada's favourite hockey team.
- C Surveying grade 8 students to decide how much homework should be assigned.
- D Surveying chocolate bar companies to find out whether chocolate should be sold in school vending machines.

23)

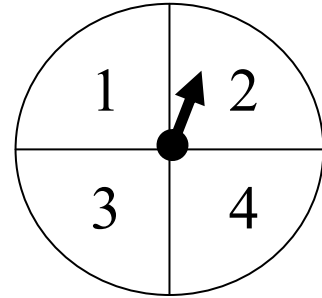
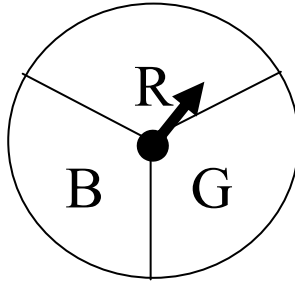
Pets Students Have	
Pet	Number of students
Cat	
Dog	
Gerbil	
Rabbit	

Which graph does NOT represent the data?

<p>A</p> 	<p>B</p> <p>Cat ☺☺☺☺☺</p> <p>Dog ☺☺☺☺☺☺☺☺</p> <p>Gerbil ☺☺</p> <p>Rabbit ☺☺☺</p> <p>☺ = 1 student</p>
<p>C</p> 	<p>D</p> 

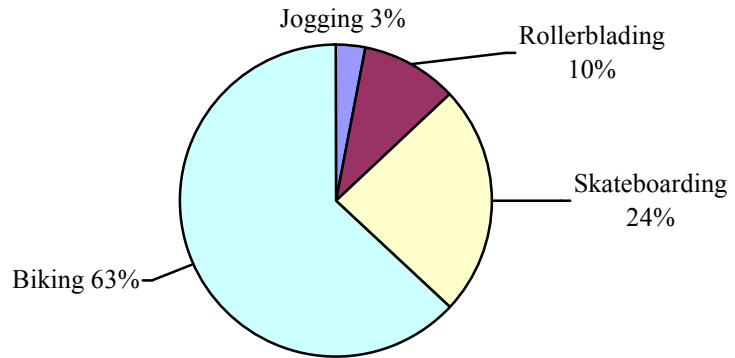
24) What is the probability of spinning an outcome of R2 on your first try?

- A Probability = $\frac{1}{3}$
- B Probability = $\frac{1}{4}$
- C Probability = $\frac{1}{7}$
- D Probability = $\frac{1}{12}$



25) The graph shows the results of a survey of 200 Grade 8 students.
How many students chose skateboarding as their favourite activity?

- A 24
- B 48
- C 72
- D 96



■ End of Multiple Choice Questions ■

Problem Solving - Written Response

Show all your thinking (charts, diagrams, calculations and a complete answer).

- 26) Jody earns \$8.00 per hour.
Michael earns \$10.00 per hour.
They each earn a 2% commission on what they sell.
Jody sold \$6000. She worked 30 hours.
Michael sold \$5000. He worked 40 hours.

What were each of their earnings for the week?
What was the difference in their earnings?

Show your work.

27) The dimensions of the shed are 15m by 3m by 4m.

The dimensions of the boxes are 50cm by 40cm by 20cm.

What is the maximum number of boxes that can be placed into a storage shed?

Show your work.

28)

School uniform colours		
Shirts	Red	Purple
Shorts	Green	Black
Socks	Yellow	Orange

A uniform consists of a shirt, a pair of shorts, and a pair of socks.

Show all the possible combinations for uniforms using the colour choices given.

- 29) Two plants are growing in a green house.
One plant is 16 cm tall and growing at a rate of 1.5 cm/day.
The other is 10 cm tall and growing at a rate of 3 cm/day.

How long will it take for the two plants to reach the same height?

Show your work.

BASIC MATH COMPUTATION from Grade 8

$20 + 5(4 + 2)$	$3^2 - 12 - (3 \times 2)$
$\frac{21 \div 3 - 2}{1 + 2 \times 0}$	$7 + (-4) \times 3$
$(-1.2) \times (-3)$	Evaluate: $x - y$ if $x = +5, y = -3$
$\frac{(-2)^3}{-2}$	$\frac{3}{5} + \frac{1}{4}$
$4\frac{1}{4} - 1\frac{2}{3}$	$\frac{4}{15} \times 1\frac{3}{4}$

$$\frac{8}{9} \div \frac{2}{3}$$

$$\sqrt{225}$$

$$\sqrt{1.44}$$

$$\frac{\square}{3} = \frac{10}{6}$$

$$\square:12:8 = 16:\square:32$$

$$\frac{7}{20} = \text{_____}\%$$

$$3:5 = \text{_____}\%$$

$$1.2 = \text{_____}\%$$

Solve for x :

$$\frac{x}{-2} = 8 - 12$$

Solve for x :

$$3(x+7) = 12$$

Answer Key

Strand

- | | |
|--|--|
| 1. C (Number) Perfect Square | 14. B (Shape and Space) Pythagoras |
| 2. B (Number) Square Root | 15. D (Number) Percent |
| 3. C (Number) Ratio | 16. B (Shape and Space) Pythagoras |
| 4. C (Number) Percent | 17. D (Shape and Space) Nets |
| 5. B (Number) Percent | 18. C (Shape and Space) Surface Area |
| 6. D (Number) Fraction | 19. C (Statistics and Probability) Graphs |
| 7. D (Number) Percent | 20. D (Shape and Space) Properties |
| 8. C (Number) Proportion | 21. B (Shape and Space) Nets |
| 9. B (Patterns and Relations) Substitution | 22. A (Statistics and Probability) Survey |
| 10. A (Patterns and Relations) Similar Terms | 23. A (Statistics and Probability) Graphs |
| 11. A (Patterns and Relations) Algebra | 24. D (Statistics and Probability) Probability |
| 12. C (Patterns and Relations) Algebra | 25. B (Number) Percent |
| 13. B (Patterns and Relations) Graphing | |

Written Responses

26. Jody \$360.00
 Michael \$500.00
 Difference \$140.00

1	2	3	4
- A start beyond copying that shows some understanding	- Correct answer but no work shown or, - Appropriate strategy but not carried out far enough	- Correct answer but unclear strategy or, - Appropriate strategy but ignored a condition	- Correct answer with clear strategy or, - Incorrect solution with a copy error or minor computation error (not a misunderstanding)

27. 4500 boxes (volume of shed = 180m^3 , volume of box = 0.04m^3 , $180 \div 0.04 = 4500$)

1	2	3	4
- A start beyond copying that shows some understanding	- Correct answer but no work shown or, - Appropriate strategy but not carried out far enough (ie, volume of shed or box)	- Correct answer but unclear strategy or, - Appropriate strategy but ignored a condition	- Correct answer with clear strategy or, - Incorrect solution with a copy error or minor computation error (not a misunderstanding)

28. 8 combinations RGY, RGO, RBY, RBO, PGY, PGO, PBY, PBO

1	2	3	4
- A start beyond copying that shows some understanding	- Correct answer but no work shown or, - Appropriate strategy but not carried out far enough - Less than 5 combinations	- Correct answer but unclear strategy or, - Appropriate strategy but ignored a condition - 5 to 7 combinations	- Correct answer with clear strategy or, - Incorrect solution with a copy error or minor computation error (not a misunderstanding) - 8 correct combinations

29. 4 days

1	2	3	4
- A start beyond copying that shows some understanding	- Correct answer but no work shown or, - Appropriate strategy but not carried out far enough	- Correct answer but unclear strategy or, - Appropriate strategy but ignored a condition	- Correct answer with clear strategy or, - Incorrect solution with a copy error or minor computation error (not a misunderstanding)

Basic Calculations

50	-9
5	-5
3.6	8
4	$\frac{17}{20}$
$2\frac{7}{12}$ or $\frac{31}{12}$	$\frac{7}{15}$
$1\frac{1}{3}$ or $1.33\bar{3}$ or $\frac{4}{3}$	15
1.2	5
4:48	35%
60%	120%
$x = 8$	$x = (-3)$

Quick Scale: Grade 8 Numeracy

This Quick Scale is a summary of the criteria described in detail in the Rating Scale that follows. These criteria may apply at any time of the year, depending when specific skills or concepts are introduced.

Aspect	Not Yet Within Expectations	Meets Expectations (Minimal Level)	Fully Meets Expectations	Exceeds Expectations
Snapshot	The student is unable to meet basic requirements of the task without close, ongoing assistance. Unable to provide a relevant extension.	The work satisfies most basic requirements of the task, but it is <i>flawed or incomplete</i>. May produce a simple extension.	The work satisfies basic requirements of the task. If asked, the student can produce a relevant extension or further illustration.	The work is complete, accurate, efficient and insightful. The student may volunteer an alternative procedure, an extension, or an application.
Concepts and Applications* <ul style="list-style-type: none"> ▪ recognizing mathematics ▪ grade-specific concepts, skills ▪ patterns, relationships 	<ul style="list-style-type: none"> ▪ unable to identify or apply mathematical concepts or procedures needed ▪ often unable to recognize basic relationships or patterns 	<ul style="list-style-type: none"> ▪ identifies and applies most mathematical concepts and procedures; some errors or omissions ▪ may need prompting to recognize and use basic patterns and relationships 	<ul style="list-style-type: none"> ▪ identifies and applies mathematical concepts and procedures needed; may make minor errors or omissions ▪ recognizes and uses basic patterns and relationships 	<ul style="list-style-type: none"> ▪ identifies and applies mathematical concepts and procedures needed; efficient and thorough ▪ independently recognizes and uses patterns and relationships
Strategies and Approaches <ul style="list-style-type: none"> ▪ procedures ▪ estimates to verify solutions 	<ul style="list-style-type: none"> ▪ unsystematic and inefficient ▪ results or solutions are often improbable 	<ul style="list-style-type: none"> ▪ follows instructions without checking; often inefficient ▪ estimates of small quantities or simple operations are logical 	<ul style="list-style-type: none"> ▪ structures the task logically; may be inefficient ▪ estimates are logical 	<ul style="list-style-type: none"> ▪ structures the task efficiently; may find a shortcut or an alternative ▪ estimates are logical and relatively accurate
Accuracy <ul style="list-style-type: none"> ▪ recording, substitutions, calculations 	<ul style="list-style-type: none"> ▪ often includes major errors 	<ul style="list-style-type: none"> ▪ may include some errors 	<ul style="list-style-type: none"> ▪ generally accurate; may include minor errors in calculations 	<ul style="list-style-type: none"> ▪ accurate
Representation and Communication <ul style="list-style-type: none"> ▪ presenting work ▪ constructing charts, diagrams, displays ▪ explaining procedures, results 	<ul style="list-style-type: none"> ▪ work is often confusing ▪ often omits required charts, diagrams, or graphs or makes major errors ▪ explanations are incomplete or illogical 	<ul style="list-style-type: none"> ▪ most work is clear; may be confusing in places ▪ constructs required charts, diagrams, or graphs; some omissions or errors ▪ explanations of procedures and results may be incomplete 	<ul style="list-style-type: none"> ▪ work is generally clear ▪ constructs required charts, diagrams, or graphs appropriately; may include minor errors ▪ explains procedures and results logically 	<ul style="list-style-type: none"> ▪ work is detailed, clearly labelled, and logically organized ▪ constructs required charts, diagrams, or graphs effectively ▪ explains procedures and results logically and thoroughly

* You may want to list key curriculum concepts or skills for a particular task.
