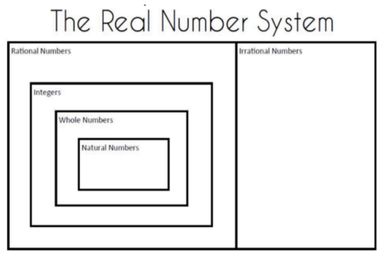
Name:

EQAO Scaffolding - Question Grid

Date:

B. Number



Circle True or False about the following statements relating to the *Real Number System.*

A rational number is always positive.	True / False
A rational number can be written as a fraction.	True / False
The square root of any number is a rational number.	True / False
A rational number in its decimal form is a non-ending, non-repeating decimal.	True / False

There are a total of 90 red and yellow tiles. There are 5 times as many red tiles as yellow tiles. How many red tiles are there?

What is the value of $\left(-\frac{4}{3}\right)^{-2}$?

C. Algebra

Identify which tables are linear and which are non-linear. Show your thinking.

Table 1

x	y
-2	3
-1	0
0	3
1	0

Table 2

x	y
-2	17
-1	8
0	-1
1	-10

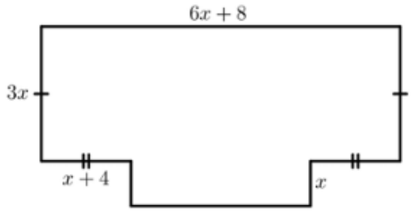
Table 3

x	y
-2	3
-1	0
0	-1
1	0

Table 4

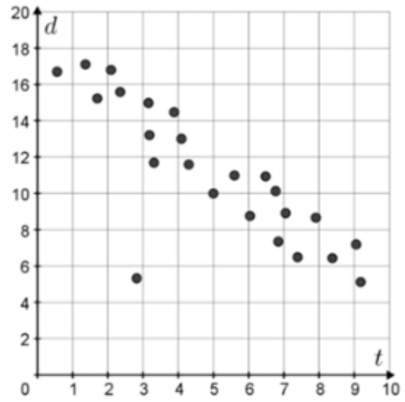
x	y
-2	-12
-1	-5
0	1
1	6

In the following figure, all angles formed by adjacent sides are right angles. Which algebraic expression represents the area of the figure?

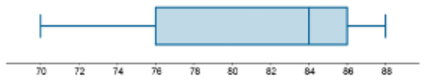


D. Data

What is the equation that best represents the relationship shown in the scatter plot?

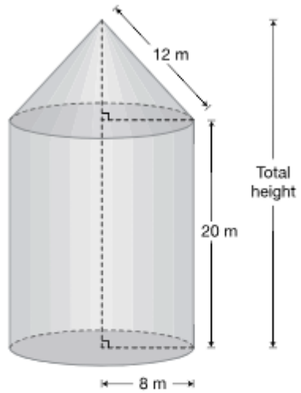


The box plot shown below illustrates Naomi's math test marks for the school year. **Label** the box plot and find the five number summary of the graph. Make **TWO** conclusions about Naomi's math test marks based on the information you found.



E. Geometry and Measurement

The dimensions of a silo are given.



Hint: Use the side-length relationship for right triangles, $a^2 + b^2 = c^2$.

Which value is closest to the **total** height of the silo?

A cone and a cylinder have the same height and the same radius. If the volume of the cylinder is $228cm^3$, what is the volume of the cone?

Kevin uses his slippers, which are each 30 cm long, to measure the length of a wall in his home. If the wall is 20 slipper lengths long, what is the length in metres?

F. Financial Literacy

A person creates a monthly budget and determines the monthly income will be $2800.
The person's expenses are shown in this table.

Monthly Expenses	Cost
Rent	$1500
Utililties	$350
Food	$400
Other	$345

Which statements about the person's budget are true? Support your answer with mathematical thinking.

a. The budget needs to be modified, because the monthly are more than the monthly income.	b. The budget does not have to be modified, because the monthly expenses are less than the monthly income.
c. If the rent goes up by $205, the monthly expenses will be the same amount as the monthly income.	d. If the utilities go down by $205, the monthly expenses will be the same amount as the monthly income.

Label the following financial situations as **appreciation** or **depreciation**.

The value of a television over time.	
The value of a piano that tripled in value over 35 years.	
The increasing value of a collector's item over time.	
The amount owing on a loan after 2 years of payments.	

B. Number

What is the value of $1.8 + 0.5\left(2\frac{1}{4}\right) - \frac{5}{2}$?

An equation is shown.

$$\frac{(x^6y^3)(x^{\square}y^8)}{x^3y^4} = x^{12}y^{\triangle}$$

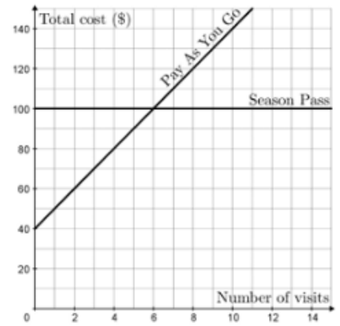
State the values that make this equation true.

$\square$ = $\triangle$ =

C. Algebra

Prove whether or not each point satisfies the inequality -3x + 4y ≥ 15.

(-8, -1)	(-2, 1)	(3, 2)	(1, 5)



An amusement park offers two payment options, as described in the graph. Which option is the better deal at 2 visits? 6 visits? 8 visits? 20 visits?

This pseudocode is used to determine the value of a variable in an equation.

```
variableB = 0
variableC = 0
output "Enter the value of variable B."
store input as variable B
output "Enter the value of variable C."
store input as variable C
variableA = ((5 * variableC) –
variableB) / 4
output "The value of variable A is ",
variableA, "."
```

What is the value of **variableA** if the program is run and 2 is entered for **variableB** and 6 is entered for **variableC?**

D. Data

Suresh asks several students in his school to state their favourite sport.

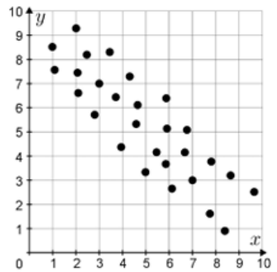
What types of graphs would be appropriate to display the results of his survey? Why does that graph work for his survey?

The results of a survey of 80 students are shown.

	Students who like broccoli	Students who do not like broccoli
Students who like carrots	42	18
Students who do not like carrots	?	9

What conclusions can we draw from the results that are supported by the numbers shown? (e.g., percentages, comparative statements)

What could the value of the correlation coefficient be in the following graph? What evidence supports your conclusion?

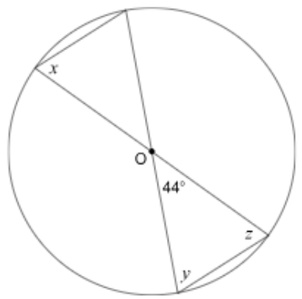


E. Geometry and Measurement

A frame is in the shape of a rectangle. A second rectangle frame has triple the length and one third of the width of the first frame.

How does the area of the second frame compare to the area of the first frame?

What are the values of x, y and z?

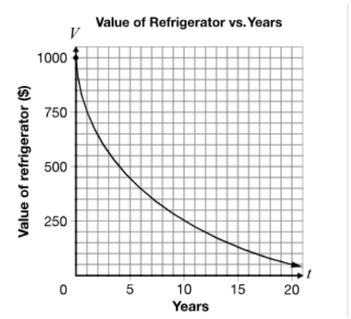


F. Financial Literacy

A person gets a loan to make a $3000 purchase. Determine how long it would take to repay the loan for each of the following situations, at 0% interest.

a. A $300 down payment and monthly $75 payments	b. A $600 down payment and monthly $50 payments
c. A $300 down payment and biweekly $50 payments	d. A $600 down payment and biweekly $30 payments

This graph represents the relationship between the value of a refrigerator, in dollars, and the number of years since its purchase.



Describe the value of the refrigerator after 10 years compared to the initial purchase value.

Pamela plans to invest $2000 for 3 years using one of the following interest calculation options:
Option 1: Simple Interest at a rate of 2.6% per year.
Option 2: Compound interest at a rate of 2.6% a year, compounded monthly.
Option 3: Compound interest at a rate of 2.6% per year, compounded annually.

Organize the **Options** from **least to greatest** amount of interest earned. Justify how you know they are in the correct order.