



Grade 6 Math
Date: Oct. 23



input	output
1	2
2	9
3	16
4	23
5	30
6	37

* What is the input rule:
Start at 1 and add 1 each time.

* What is the output rule:
Start at 2 and add 7 each time.

* What is the pattern rule that relates the input to the output (Write as an expression to represent the pattern using "n")

← machine

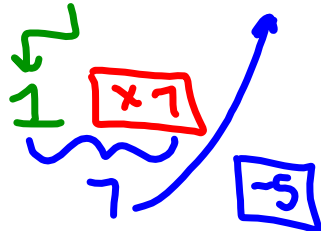
→ In $\boxed{\times 7}$ $\boxed{-5}$ = out

→ Multiply the input by 7 then subtract 5 to get output.

Machine

Input $\boxed{\times 7}$

Check
In = 1 out = 2



Expression

OR $7n - 5$
 $n \times 7 - 5$

Homework Solutions

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3. Here is a pattern of squares on grid paper.

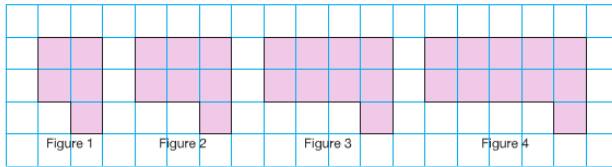


Figure # | # of blocks

1	5
2	7
3	9
4	11

- Make a table to show the numbers of squares in the first 4 figures.
- Write a pattern rule that relates the figure number to the number of squares.
- Write an expression to represent the pattern.
- Find the number of squares in the 7th figure. Which strategy did you use? Continue the pattern to check your answer.

$2 \times f$
 2×1

so need to add 3 to get 5 as # of squares

b) The pattern rule that relates the figure # to the # of squares is multiply the figure number by 2 then add 3 to get the number of squares.

c) $2f + 3$

d) if f is 7 then $2f + 3$
 $2 \times 7 + 3$
 $14 + 3$
 17

My strategy was to replace the figure number variable with the value of 7 and calculate the number of squares

4. The Grade 6 class held a dance-a-thon to raise money to buy a new computer for the class. Tyson's friend, Alana, pledged \$10, plus \$2 for each hour Tyson danced.

- Make a table to show the amount Alana pledged for 1, 2, 3, 4, and 5 hours danced.
 $\$2 \times 1 + \10 $\$2 \times 2 + \10 $\$2 \times 3 + \10
 $\$2 + \10 $\$4 + \10 $\$6 + \10
- Write a pattern rule that relates the amount pledged to the number of hours danced. Show your work.
 $2 \times h + 10$
- Write an expression to represent the pattern.
- Find how much Alana pledged when Tyson danced 9 h. What strategy did you use?
- Suppose Alana pledged \$34. How many hours did Tyson dance? How did you find out?

#hours	Money Pledged
1	12
2	14
3	16
4	18

d) Alana pledged \$28 dollars when Tyson danced 9 hours.

$$10 + 2 \times 9$$

$$10 + 18$$

$$28$$

e) $(34 - 10) \div 2$
 $24 \div 2$
 12

do the reverse of BEDMAS

Tyson danced for 12 hours if Alana pledged \$34.

Homework Solutions

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5. The pattern in this table continues.
- Write a pattern rule that relates the number to the amount.
 - Write an expression to represent the pattern.
 - Write a story problem you could solve using the pattern. Solve your problem.

In	Out
Number	Amount (\$)
0	5
1	11
2	17
3	23
4	29

$\boxed{\times 6} \boxed{+ 5}$

a) Multiply Number by 6 then add 5 to get Amount.

$6 \times n$ — Check
 $6 \times 0 = 5$
 $\boxed{+ 5}$
 $6 \times n + 5$

b) $6n + 5$
 or
 $n \times 6 + 5$

6. Skylar wants to adopt a whale through the BC Wild Killer Whale Adoption Program. The cost of a 1-year adoption is \$59. Skylar walks his neighbour's dog to raise the money. He gets \$3 for each walk.
- Make a table to show the amount left to raise after 1, 2, 3, 4, and 5 walks.
 - Write a pattern rule that relates the number of walks to the amount left to raise.
 - Write an expression to represent the pattern.
 - Find the amount left to raise after 15 walks.
 - After how many walks will Skylar have raised enough money? How do you know?

$\boxed{3 \times w}$

let w represent # of walks



$w \boxed{\times 3}$

# of walks	Total money saved
1	3
2	6
3	9
4	12
5	15

$\$3 \times 1 \text{ walk} = \3
 $\$3 \times 2 \text{ walks} = \6
 $\$3 \times 3 \text{ walks} = \9

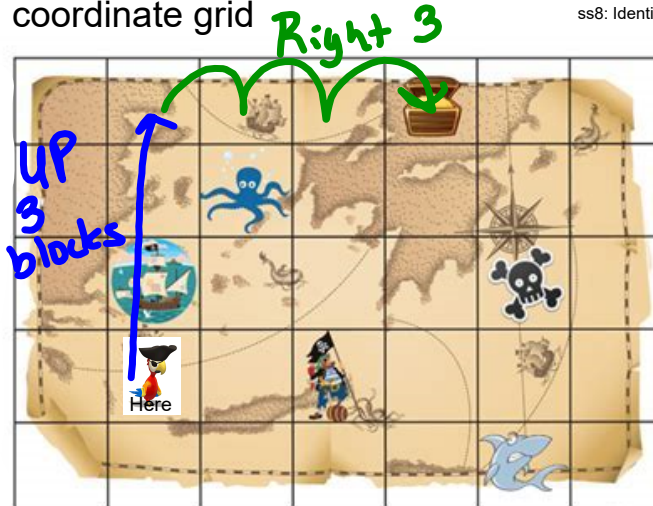
$\$3 \times 15 \text{ walks} = \45

Opposite to multiply by 3 is divide by 3
 $\$59 \div 3 = 19.6666$ so about 20 walks

Lesson 5 : Plotting points on coordinate grid

ss8: Identify & plot points in quadrant 1

If you are "here", how could you explain how to reach the treasure chest?

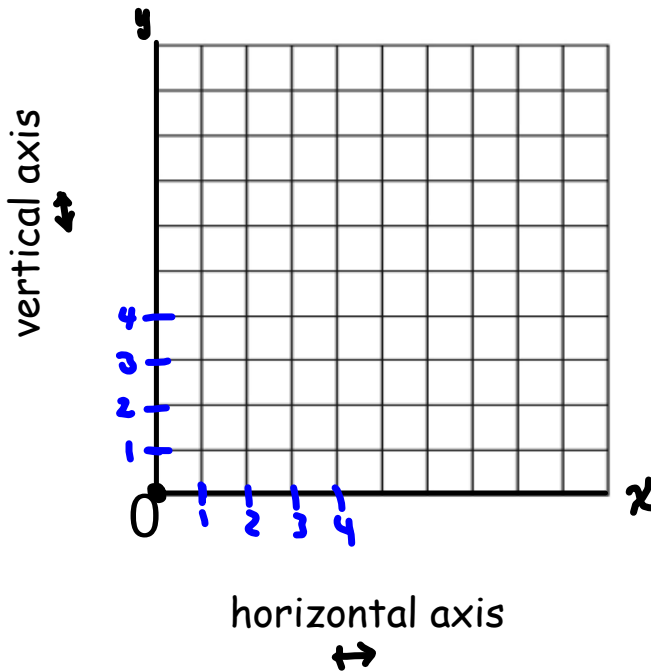


Recall that in math we need to have rules set for us, so that we all can follow and get the same answers all over the world.

René Descartes was a French mathematician who lived from 1596 to 1650. He developed the **coordinate grid** on the next page. In his honour, it is called the **Cartesian plane**.



This is a Coordinate Grid/Cartesian Plane



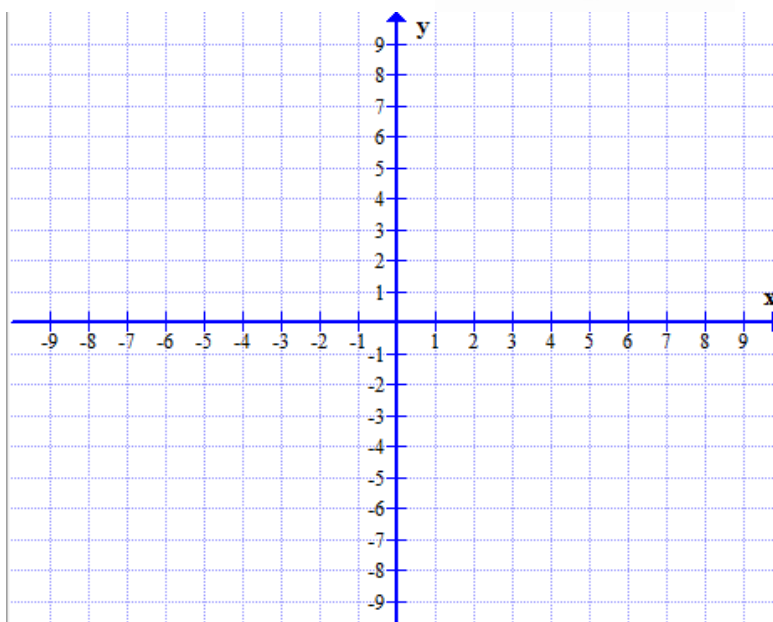
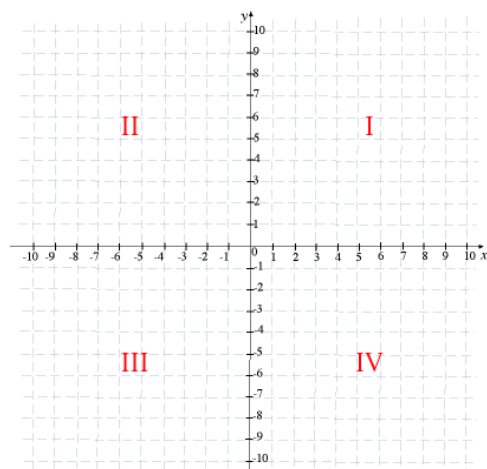
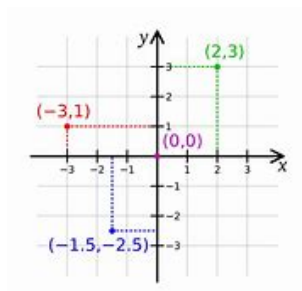
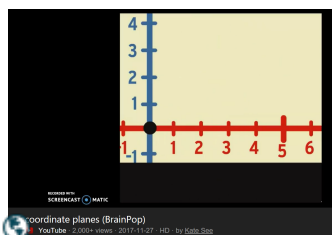
It is made from 2 perpendicular lines that meet at 0.

The point in which the two lines intersect is called the origin.

To describe the position of a point on the coordinate grid, we use two location numbers. These numbers are called coordinates and are always written in the same order.

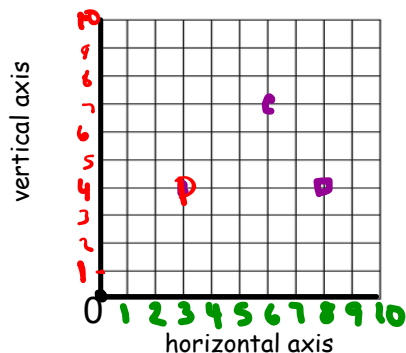
Study (right, up)
(x , y)

Always start at the origin (0, 0) and count how many block "right" first , then how many blocks "up" to get to the desired point.



For grade 6 we will focus on Quadrant 1
(positive x, positive y)
(right, up)

Let's try



The first number tells how far you move right. The second number tells how far you move up.

(x, y)



From O, to reach point B, we must move 8 units right and 4 units up.

We write these numbers in brackets $(8, 4)$

These are called coordinates or ordered pairs.

We say: B has coordinates $(8, 4)$

We write: B $(8, 4)$

Now write the ordered pairs for both the points C and D

$C(6, 7)$

$D(8, 4)$

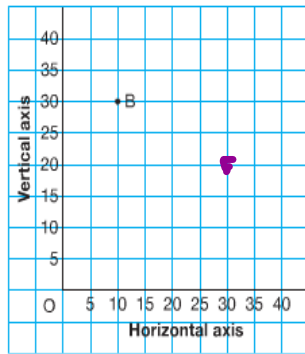
- ▶ When the numbers in an ordered pair are large, we use a scale on the coordinate grid. On this coordinate grid, 1 square represents 5 units.

To plot point B(10, 30):
Start at O.
Move 2 squares right.
Move 6 squares up.

"Coordinates" is another name for "ordered pair."



notice the scale of counting by 5 for the vertical axis



notice the scale of counting by 5 for the horizontal axis

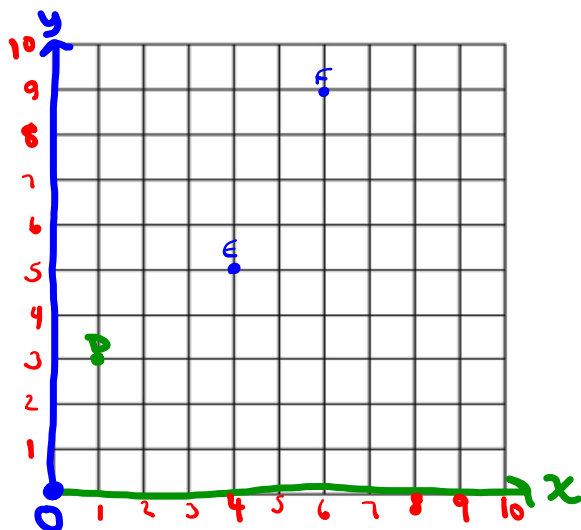
Practice

What is the coordinate for F?

$F(30, 20)$

You try plotting these three points

*Label your axis first



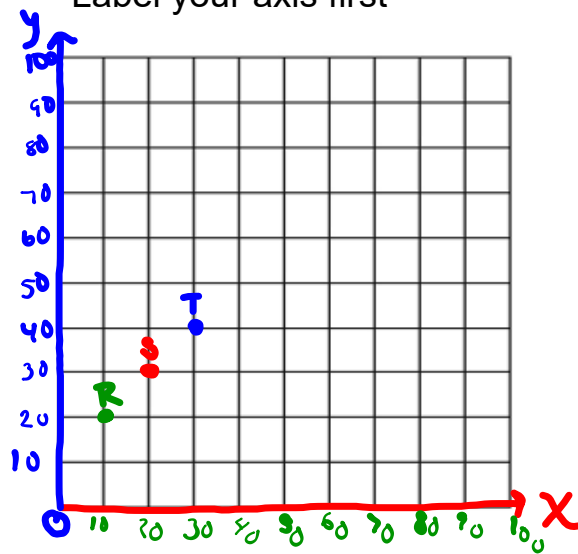
D(1, 3)

E(4, 5)

F(6, 9)
→ ↑

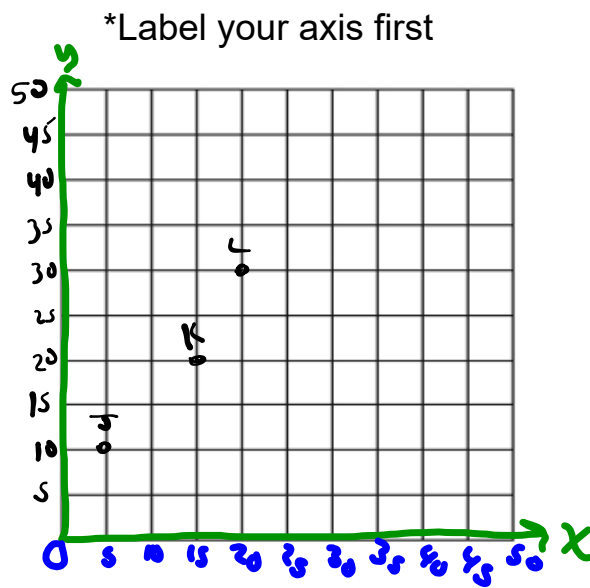
You try plotting these three points

*Label your axis first



→ ↑
R(10, 20)
S(20, 30)
T(30, 40)

You try plotting these three points



$$J(5, 10)$$

$$K(15, 20)$$

$$L(20, 30)$$