

Warm Up

Grade 7



Input v	Output $3v + 5$
1	8
2	11
3	14
4	17
5	20

- a) Fill in the output (show work)
- b) Draw a graph on graph paper that shows the relation
- c) Use the graph to answer the following:

i) What is the output for $v = 10$?

ii) What input value gives the output of 29?

6	23
7	26
8	29

Input = 8

$v = 1$

$$3v + 5$$

$$3(1) + 5$$

$$\underline{3} + 5$$

8

$v = 2$

$$3v + 5$$

$$3(2) + 5$$

$$\underline{6} + 5$$

11

$v = 3$

$$3v + 5$$

$$3(3) + 5$$

$$\underline{9} + 5$$

14

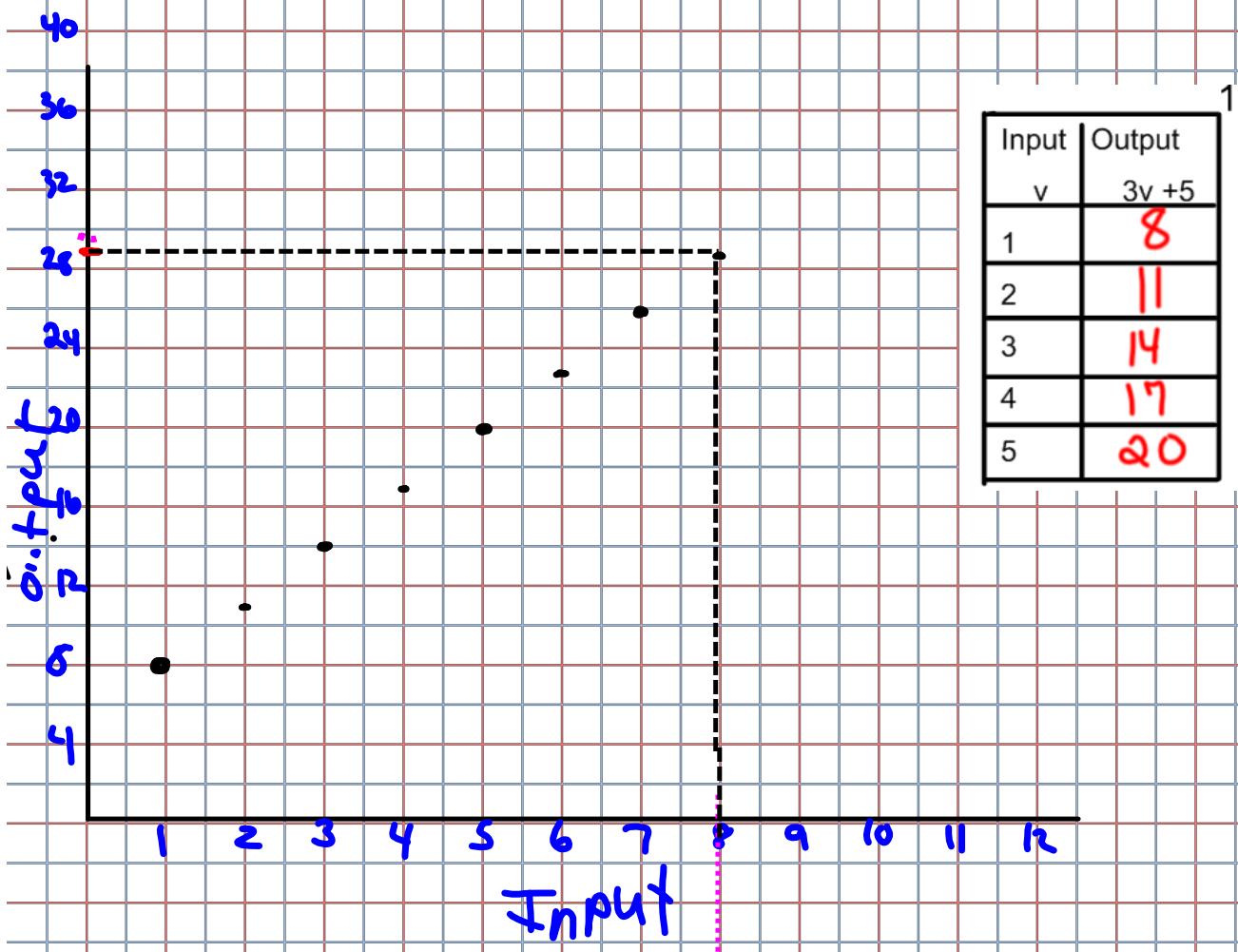
$v = 10$

$$3v + 5$$

$$3(10) + 5$$

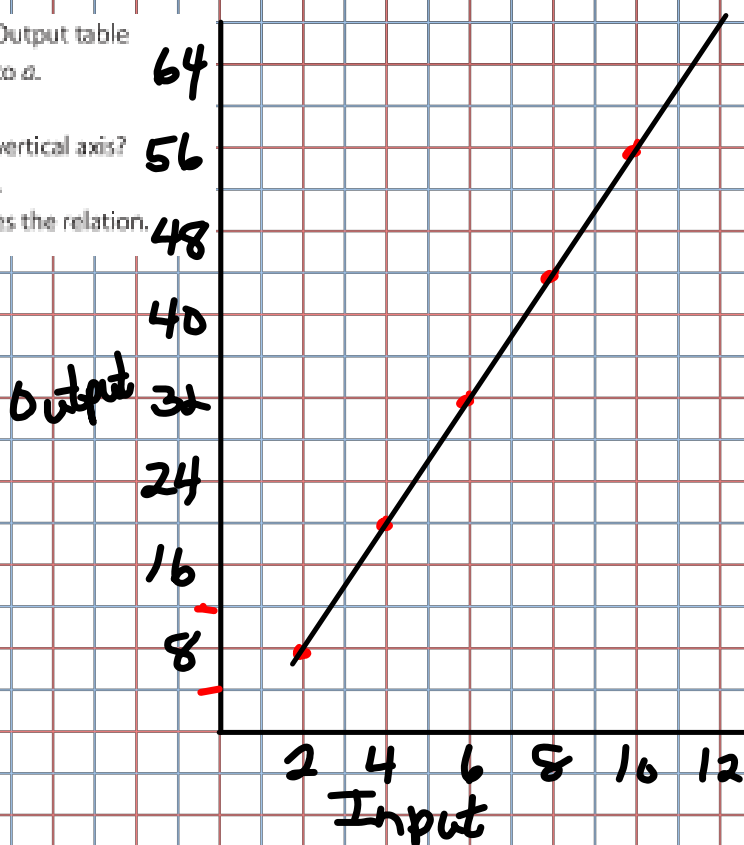
$$\underline{30} + 5$$

35



3. a) Copy and complete this Input/Output table to show how $6a - 4$ is related to a .
 b) Graph the relation.
 What scale did you use on the vertical axis?
 How did you make your choice.
 c) Explain how the graph illustrates the relation.

Input	Output
a	$6a - 4$
2	8
4	20
6	32
8	44
10	56



Homework Solutions

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5. Admission to Fun Place is \$5.

Each go-cart ride costs an additional \$3.

$$3n + 5$$

a) Write a relation to show how the total cost is related to the number of go-cart rides.

b) Copy and complete this table.

c) Draw a graph to show the relation. Describe the graph.

d) Use the graph to answer these questions:

- i) Erik goes on 6 go-cart rides. What is his total cost?
- ii) Before entering the park, Lydia has \$30. How many go-cart rides can she afford?

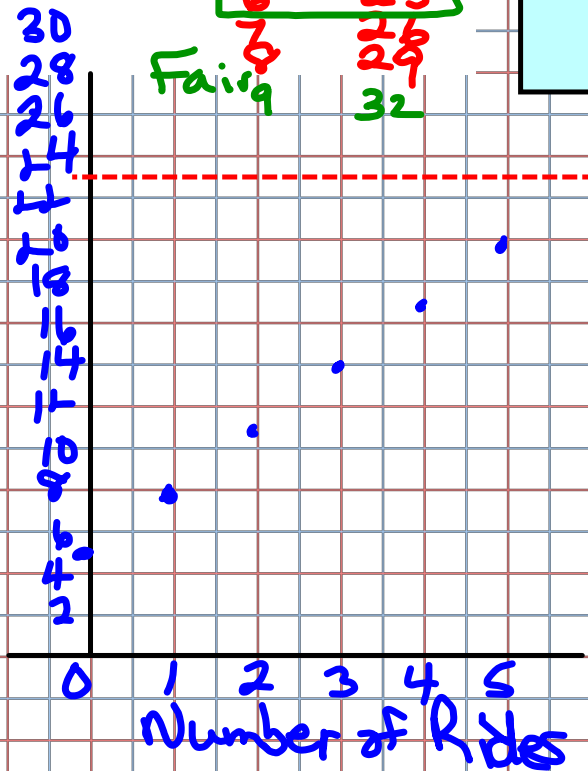
Number of Go-Cart Rides	Total Cost (\$)
0	5
1	8
2	11
3	14
4	17
5	20

6	23
7	26
8	29
9	32

a) Cost = $3m + 5$
 or $5 + 3m$

d) i) 6 rides cost \$23

ii) He can go on 8 rides



Homework Solutions

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6. Match each graph to its relation.

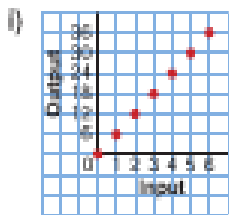
- a) The number of seashells collected is related to the number of students who collected. There are 12 seashells to start. Each student collects 3 seashells.
- b) The number of counters on the teacher's desk is related to the number of students who remove counters. There are 36 counters to start. Each student removes 6 counters.
- c) The money earned baby-sitting is related to the number of hours worked. The baby-sitter earns \$6/h.

(i)

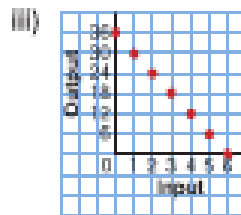
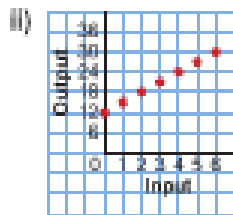
Input	Output
0	0
1	6
2	12
3	18
4	24

$6n$

(c)



$6n$



(ii)

Input	Output
0	12
1	15
2	18
3	21
4	24

$3n + 12$

(a)

(iii)

Input	Output
0	36
1	30
2	24
3	18
4	12

$36 - 6n$

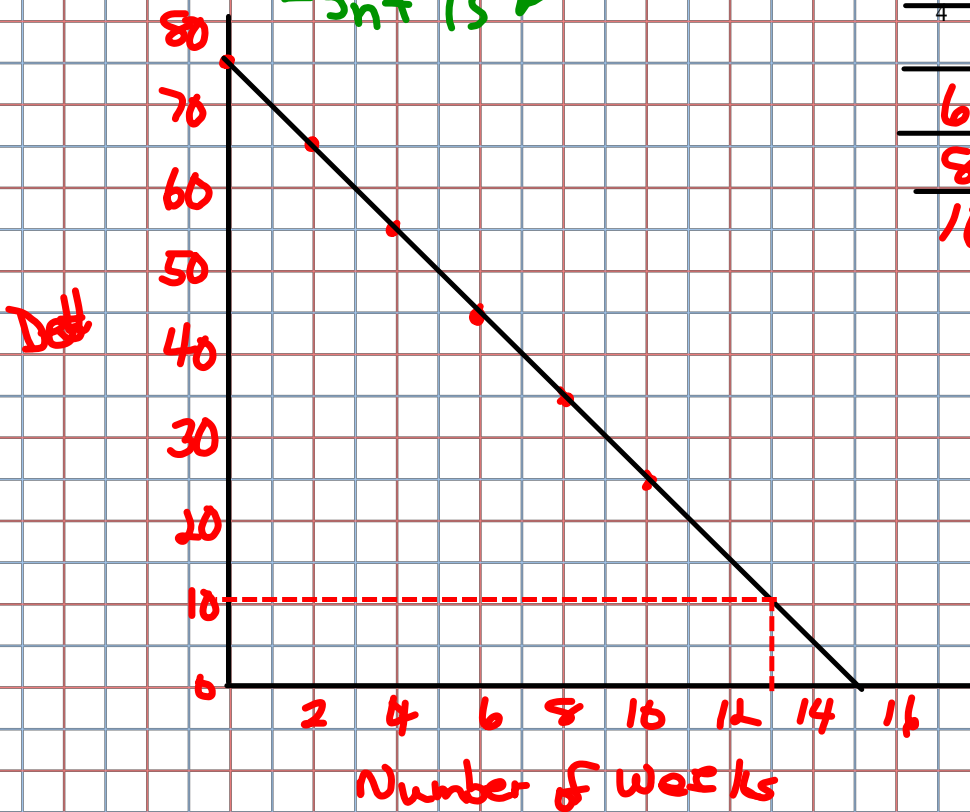
Homework Solutions

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7. Akuti borrows \$75 from her mother to buy a new lacrosse stick. She promises to pay her mother \$5 each week until her debt is paid off.
- Write a relation to show how the amount Akuti owes is related to the number of weeks.
 - Make a table for the amount owing after 2, 4, 6, 8, and 10 weeks.
 - Draw a graph to show the relation. Describe the graph.
 - Use the graph to answer these questions:
 - How much does Akuti owe her mother after 13 weeks?
 - When will Akuti finish paying off her debt?

Number of weeks	Money owed
0	75
1	70
2	65
3	60
4	55
6	45
8	35
10	25

a) $Debt = 75 - 5n$
 $-5n + 75$



- (d) At 13 weeks she owes \$10
 At week 15, she finishes paying her debt

Homework Solutions

Pg 33 -34 #5 -8

8. Assessment Focus Use the relation: $5n + 6$ is related to n

- a) Describe a real-life situation that could be represented by this relation.
- b) Make a table of values using appropriate input numbers.
- c) Graph the relation. Describe the graph.
- d) Write 2 questions you could answer using the graph.

Answer the questions.

Step-by-Step 6

Lesson 1.6, Question 8

Step 1 $5n + 6$ related to n could describe the amount of money I've saved after n weeks, if I started with \$6 and saved \$5 per week.

Describe another real-life situation that this relation could represent.

Step 2 Complete this table of values for the relation.

Use input numbers that make sense with your real-life situation.

Step 3 Plot the data in the table on the grid.

Choose a scale for the horizontal axis that fits your input numbers.

Horizontal scale: 1 square = _____

Choose a scale for the vertical axis that fits your output numbers.

Vertical scale: 1 square = _____

Step 4 Write two questions you could answer using the graph, then answer each question.

8. 5nt6

Input	Output
0	6
2	16
4	26
6	36
8	46

strings

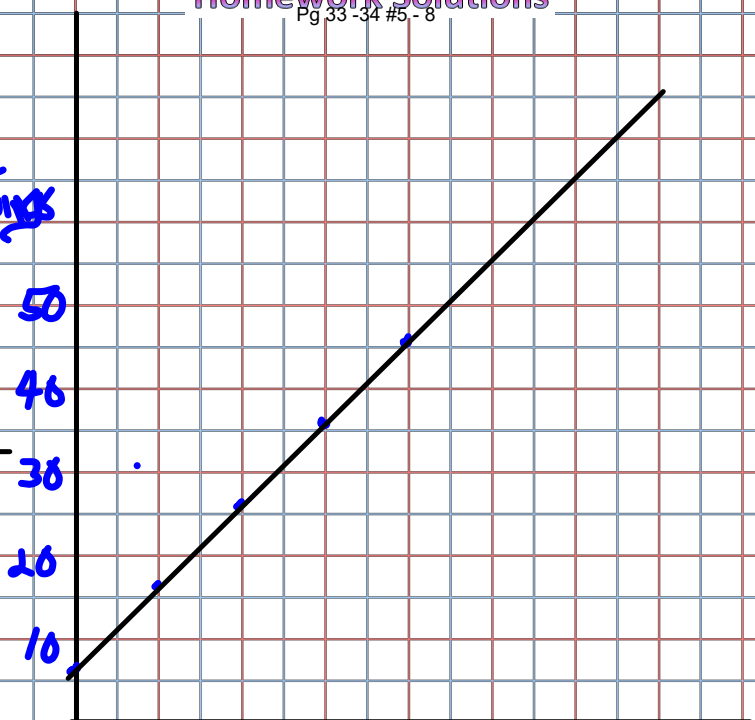
50
46
38
26
10

Save \$5 per week,
and started off
with \$6.

0 2 4 6 8 10
of weeks

Homework Solutions

Pg 33-34 #5-8



Section 1.7 Reading & Writing Equations



Write an algebraic expression for these statements:

Think of a number. n

Multiply by 2. $2n$

Add 3. $2n + 3$

Expressions have NO EQUAL sign

What if...

I tell you the answer is 13. What is the original number?

$$\begin{array}{l} 2n + 3 = 13 \\ \text{~~~~} \\ 10 + 3 \\ \swarrow \quad \searrow \\ 2 \quad (?) \\ \quad \downarrow \\ \quad 5 \end{array}$$

Tim bought 6 Shirts. Each shirt cost the same amount. The total cost was \$72. What was the cost of 1 shirt?



$n \equiv$ Cost of 1 shirt

How could we relate this algebraically?

$$6n = 72$$

Write an equation for the situation.

Let "s" represent the cost of 1 shirt.

Then the cost of 6 Shirts is 72.

This is equal to \$72.

EQUATION is : $6s = 72$

Equations have an equal sign

(One quantity is EQUAL to another quantity)



In an EQUATION the variable represents a SPECIFIC unknown number.

$$3x + 2 = 11$$

x is a specific number

Example:

Write an equation for each:

a) 7 less than a number is 10

$$n - 7 = 10$$

b) 2 more than a number is 20

$$2 + n = 20$$

or

$$n + 2 = 20$$

c) 6 added to 4 times a number is 14

$$4n + 6 = 14$$

d) a product of 7 and a number is 77

multiply

$$7n = 77$$

*Always define the variable
let n represent the
number

Class/Homework

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4) 

$$\underbrace{s + s + s + s}_{4s} = 156$$



3c) $A_D = \text{base} \times \text{height}$

$$36 = 6 \times h$$