



Warm up Grade 7

Nov. 2, 2022



- 1) For each of the following charts,
 - i) Write the relations as an algebraic expression
 - ii) Describe the relation in words

Term Number	4	5	6	7
Term	28	30	32	34

Handwritten annotations: Blue arrows labeled 'up 1' connect term numbers 4 to 5, 5 to 6, and 6 to 7. Blue arrows labeled 'up 2' connect terms 28 to 30, 30 to 32, and 32 to 34. A red box highlights the first column (Term Number 4, Term 28).

b) As term # increases by 1, the term increases by 2.

$$2n$$

Check $n=4$ Term = 28

$$2(n)$$

$$2(4)$$

$$8$$

add 20

$$2n + 20$$

1. Which numbers are divisible by 4?

By 8? How do you know?

a) 932 b) 1418 c) 5056

d) 12160 e) 14436

Handwritten notes and division work:

$4 \times 2248 = 8992$ (written as 4×2248)

$8 \overline{) 932}$

$8 \overline{) 418}$

$8 \overline{) 436}$

Number	Div by 4	Div by 8
(a) 932 <u>8</u>	✓	X
(b) 1418 <u>8</u>	X	X
(c) 5056 <u>8</u>	✓	✓
(d) 12160 <u>8</u>	✓	✓
(e) 14436 <u>8</u>	✓	X

Handwritten notes below table:

Look at last 2 digits

Look at last 3 digits

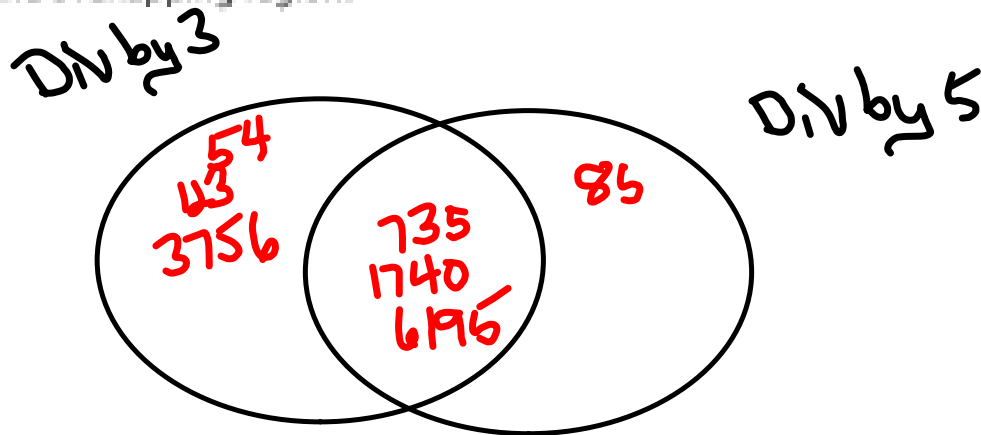
2. Draw a Venn diagram with 2 loops.

Label the loops: "Divisible by 3" and

"Divisible by 5." Sort these numbers:

54 85 123 735 1740 3756 6195

What is true about the numbers in the overlapping region?



3. Use the divisibility rules.

Find the factors of each number.

a) 85

b) 136

c) 270

a) 85
 1×85
 5×17

b) 136
 1×136
 2×68
 4×34
 8×17

c) 270
 1×270
 2×135
 3×90
 5×54
 6×45
 9×30
 10×27

- ★ 4. Write an algebraic expression for each statement.

Let n represent the number.

a) seven more than a number

$$n + 7$$

b) a number multiplied by eleven

$$11n$$

c) a number divided by six

$$\frac{n}{6}$$

d) three less than four times a number

$$4n - 3$$

e) the sum of two and five times a number

$$2 + 5 \times n \quad \text{or} \quad 2 + 5n$$

- ★ 5. Predict which expression in each pair will have the greater value

when y is replaced with 8.

Evaluate to check your predictions.

a) i) $y + 7$

ii) $2y$

$$8 + 7 = 15$$

$$6 \times 8 = 48$$

$$2 \times 8 = 16$$

$$9 - 8 = 1$$

b) i) $6y$

ii) $9 - y$

c) i) $\frac{y+4}{2}$

ii) $\frac{y}{2} + 4$

d) i) $2y + 6$

ii) $3y - 6$

$$c) \frac{8+4}{2}$$

$$\frac{12}{2} = 6$$

$$\frac{8}{2} + 4$$

$$4 + 4 = 8$$

$$d) \frac{2 \times 8 + 6}{2}$$

$$\frac{16 + 6}{2} = 22$$

$$\frac{3 \times 8 - 6}{1}$$

$$24 - 6 = 18$$

pg 29 #6-8
Sheet 16 #1-5

3 less than 5

$$5 - 3 = 2$$

3 less than 10

$$10 - 3 = 7$$

3 less than 83

$$83 - 3 = 80$$

3 less than 99

$$99 - 3$$

3 less than 803

$$803 - 3$$

3 less than a number

$$n - 3$$

3 less than triple a
number
($3n$)

$$3n - 3$$

★ 6

i) For each number pattern, how is each term related to the term number?

ii) Let n represent the term number. Write a relation for the term.

a)

Term Number	1	2	3	4	5	6
Term	6	12	18	24	30	36

a) The term is the term number multiplied by 6

$6n$ or $n \times 6$

b)

Term Number	1	2	3	4	5	6
Term	5	6	7	8	9	10

b) The term is 4 more than the term number

$n + 4$

$6(2) = 12$
 $1(n) + 4 = 5$
 add 4

★ 7. Dave pays to practise in a music studio. He pays \$12 each month, plus \$2 for each hour he practises.

# of hours	0	1	2	3	n
Cost	12	14	16	18	

a) Write a relation for the total cost for one month, in dollars, when Dave practises t hours.

a) $Cost = 12 + 2t$

b) How much will Dave pay to practise 10 h in one month? 20 h?

b) $12 + 2t, t = 10$
 $12 + 2(10)$
 $12 + 20$
 32

c) How does the relation change when the cost per hour doubles?

$12 + 2t, t = 20$
 $12 + 2(20)$
 $12 + 40$
 52

c) If the cost per hour doubles the relation is $12 + 4t$

★ B. Use algebra. Write a relation for each Input/Output table.

a)

Input	Output
x	
1	7
2	11
3	15
4	19

$4n$
 $4(1) = 4$
 $4 + 3 = 7$

↑ 4

$4x + 3$

b)

Input	Output
x	
1	5
2	13
3	21
4	29

$8x$
 $8(1) = 8$
 $8 - 3 = 5$
 Subtract 3

a) mult by 4 then add 3

$4x + 3$

b) mult by 8 then subtract 3

$8x - 3$



Warm up Grade 7

Oct. 29, 2014



The cost of CD's is \$12 per CD Fill in the following INPUT/OUTPUT chart

Write the relation: $Cost = 12n$

let "n" = # of CD

# of CDs	Cost (\$)
<u>n</u>	
0	0
2	24
4	48
6	72
8	96
10	120

→
24

$$\begin{aligned}
 n=0 \\
 Cost &= 12n \\
 &= 12(0) \\
 &= 0
 \end{aligned}$$

$$\begin{aligned}
 n=2 \\
 Cost &= 12n \\
 &= 12(2) \\
 &= 24
 \end{aligned}$$

$$\begin{aligned}
 n=4 \\
 C &= 12n \\
 &= 12(4) \\
 &= 48
 \end{aligned}$$

↑
up
by 24

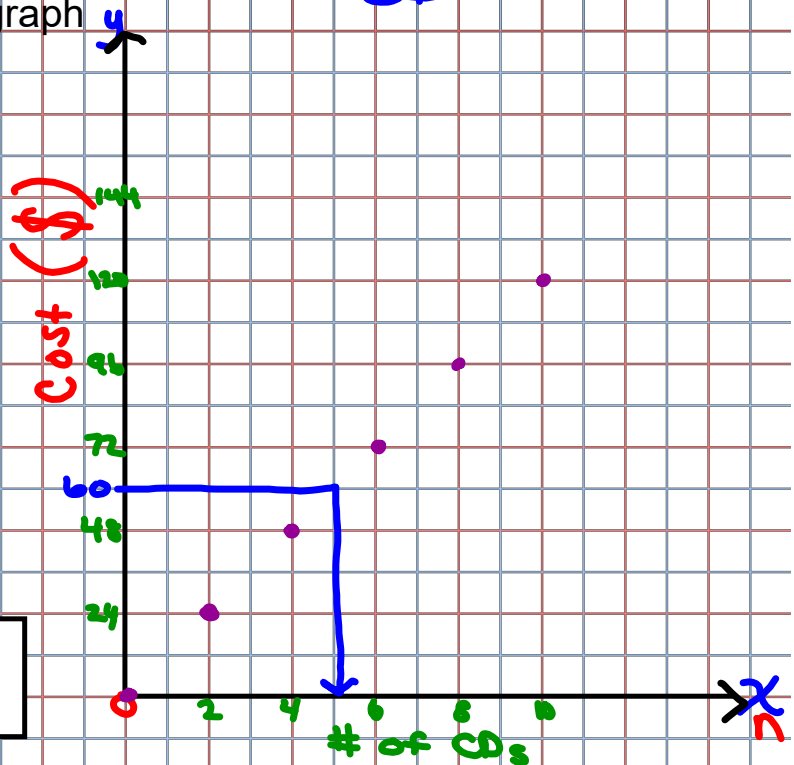
As the # of CDs increases by 2, the Cost increases by \$24.

Let's graph out findings

Remember to label the graph

CD cost

x Number of CD's n →	y Cost $12n$ (\$) ↑
0	0
2	24
4	48
6	72
8	96
10	120



How many CDs can you buy with \$60?

You can buy 5 CDs.

How much will 12 CDs cost?

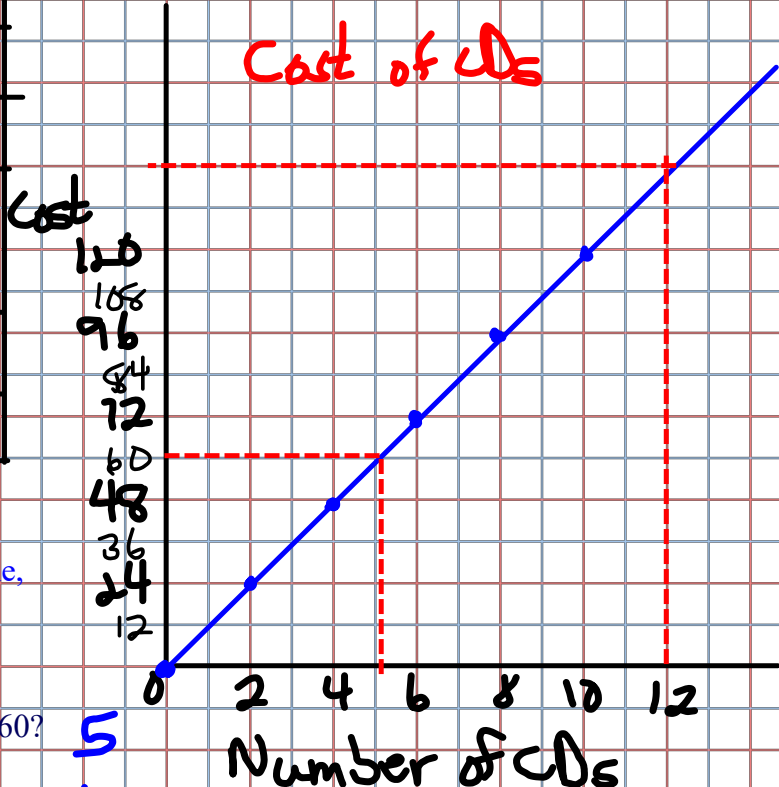
$$\begin{aligned} \text{Cost} &= 12n \\ &= 12(12) \\ &= 144 \end{aligned}$$

It will cost \$144 for 12 CDs.

$$\begin{aligned} \text{Cost} &= 12n \\ 60 &= 12(n) \\ &\div 12 \quad \div 12 \\ \boxed{5} &= n \end{aligned}$$

Solution

Number of CD's n	Cost $12n$ (\$)
0	0
2	24
4	48
6	72
8	96
10	120



When the points lie on a straight line, we say that the relation is a linear relation.

How many CDs can you buy with \$60? **5**

How much will 12 CDs cost? **\$144**

Graphing Calculator

Input n	output $3n + 1$
0	
1	
2	
3	
4	
5	



Example)

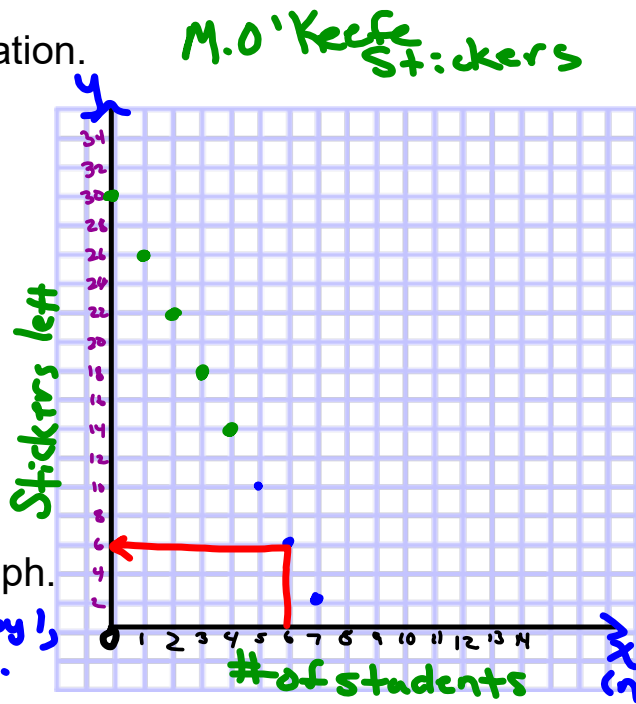
Mrs. O'Keefe has 30 stickers. She gives $4n$ 4 stickers to each student who stays in at lunch for extra help.

a) Write a relation to show how the number of stickers that remain is related to the number of students, n , that stay. $30 - 4n$

b) Make a table to show the relation.

# of Students	Stickers left
0	30
1	26
2	22
3	18
4	14

Handwritten notes: $30 - 0$, $30 - 4$, down 4 each



c) Graph the data. Describe the graph. As # of student increase by 1, the stickers decrease by 4.

d) Use the graph to answer these questions:

i) How many stickers remain when 6 students stay for extra help? 6 remain

ii) When will Mrs. O'Keefe not have enough? 7 people will have enough. (2 left over)

Class / Homework

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1, #2(graph 1a, 1b, 1c), #4

1a)

In (n)	Out
1	
2	
3	
4	
5	

$n=1$ } $n=2$ } $n=3$
 $4(n)$ } $4(n)$ } $4(n)$

smiley face

hey

smiley face with circled 'D'

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