

Key

Unit 4 Study Guide: Equations and Inequalities

Name:

Distributive Property	<p>Distribute:</p> <p>① $4(k+8)$ $4 \times k + 4 \times 8$ $4k + 32$</p> <p>② $11(h-3)$ $11h - 11 \times 3$ $11h - 33$</p> <p>③ $5(x^2+x-1)$ $5 \times x^2 + 5 \times x - 5 \times 1$ $5x^2 + 5x - 5$</p>		
Solving 1 Step Equations	<p>Solve each inequality.</p> <p>④ $17+k=54$ $-17 \quad -17$ $\frac{4 \quad 54}{-17}$ 37 $K=37$</p> <p>⑤ $43=b-9$ $+9 \quad +9$ $52=b$</p> <p>⑥ $3x=123$ $\frac{3x}{3} = \frac{123}{3}$ $x=41$</p> <p>⑦ $\frac{s}{9} = 144 \times 9$ $\frac{3 \quad 3}{144}$ $\frac{1296}{9}$ $s=1,296$</p> <p>⑧ $74.6+c=82$ $-74.6 \quad -74.6$ $C=7.4$</p> <p>⑨ $a \div 12 = 8$ $\times 12 \quad \times 12$ $a=96$</p> <p>⑩ $k \div 10 = 9$ $\times 10 \quad \times 10$ $K=90$</p> <p>⑪ $q-12=20$ $+12 \quad +12$ $q=32$</p> <p>⑫ $b \div 6 = 9$ $\times 6 \quad \times 6$ $b=54$</p> <p>⑬ $12p=24$ {1, 2, 3, 4, 5} $12 \times 1 = 24$ no $12 \times 2 = 24$ yes $12 \times 3 = 24$ no $12 \times 4 = 24$ no</p> <p>⑭ $b \div 6 = 9$ {3, 15, 42, 54} $12 \times 5 = 25$ no</p>		
<p><u>Circle any/all numbers in the set that make the inequality or equation true:</u></p>			

$$\begin{array}{r} 41 \\ 3 \overline{)123} \\ \underline{12} \\ 03 \\ \underline{-3} \\ 0 \end{array}$$

Write an equation for each situation, then find the solution.

15

Martin had 46 Takis. Ms. Hedgepeth gave him more, and now he has 58.

Equation: $46 + x = 58$

$$\begin{array}{r} 46 + x = 58 \\ -46 \quad -46 \\ \hline x = 12 \end{array}$$

Solution: 12 Takis

16

Together, Jennifer and her brother have 19 pizzas. Her brother eats 11. How many does she eat?

Equation: $J + 11 = 19$

$$\begin{array}{r} J + 11 = 19 \\ -11 \quad -11 \\ \hline J = 8 \end{array}$$

Solution: 8 pizzas

17

Miguel has been collecting baseball cards for years. He has 8 times as many cards as Jason, who just started collecting. If Miguel has 64 cards, write an equation for how many Jason has.

Equation: $64 = 8J$

$$\begin{array}{r} 64 = 8J \\ \div 8 \quad \div 8 \\ \hline 8 = J \end{array}$$

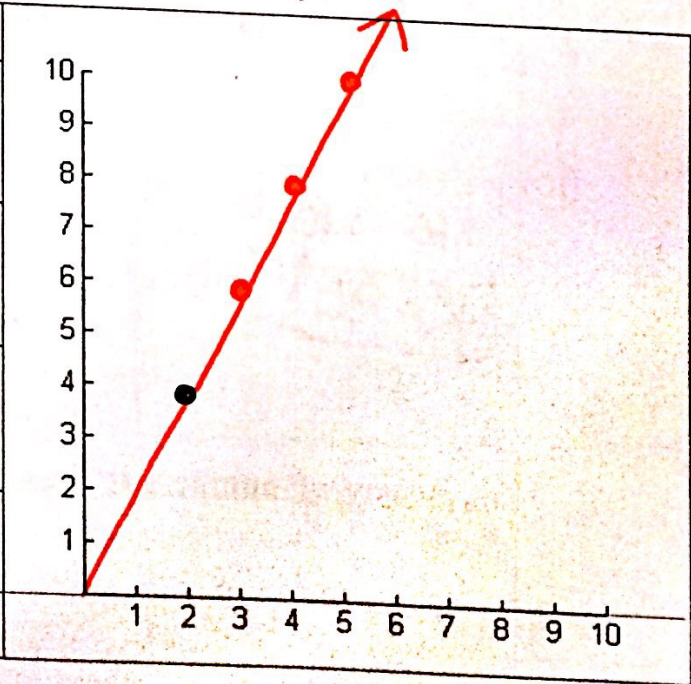
Solution: Jason has 8 baseball cards

Writing Equations and Application/Function Tables

18

Complete the function table for $y=2x$; then transfer your ordered pairs to the coordinate plane.

x	$y=2x$	y	(x, y)
2	$2 \cdot 2$	4	(2, 4)
3	$2 \cdot 3$	6	(3, 6)
4	$2 \cdot 4$	8	(4, 8)
5	$2 \cdot 5$	10	(5, 10)



19

Write a rule for the following function table: $y = 4x$

x	1	2	3	4
y	4	8	12	16

20

The table below shows the relationship between the age of a plant in months, m , and the height of the plant, h .

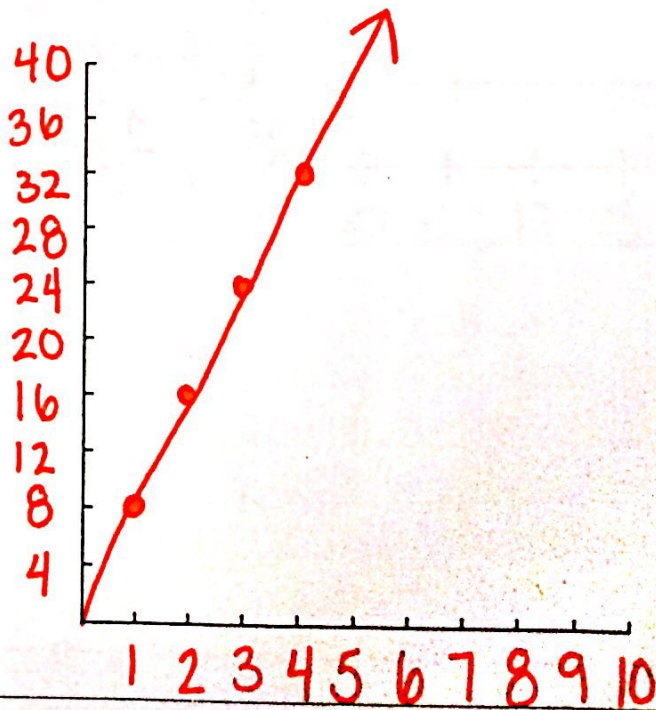
Which is the independent variable? months

Which is the dependent variable? height

Write an equation and make a graph of the table.

Equation: $y = 8x$

m	h
1	8
2	16
3	24
4	32



Write an equation in the form $x + p = q$ or $xp = q$ for each situation:

(21)

I am having a party. It cost \$8.00 for each of my friends to skate at the Cooler. How much will it cost for x friends to skate?

$$P = 8.00f$$

P = party cost
 f = friends

(22)

Sharlene has 4 more than Mary's number of oranges. How many oranges does Sharlene have?

$$S = 4 + M$$

S = Sharlene

M = Mary

(23)

Kathryn charges \$6 per hour to babysit. How much will she make if she babysits for h hours?

$$K = 6h$$

K = Kathryn

h = hours

(24)

Look at the table below: When $x=5$, what will y be?

17

x	y
1	5
2	8
3	11
4	14

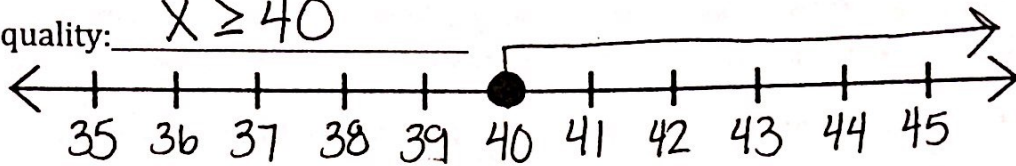
$$5 \quad \frac{+3}{17}$$

Write an inequality to represent each situation, then graph:

39

You must be at least 40 inches to go on the ride.

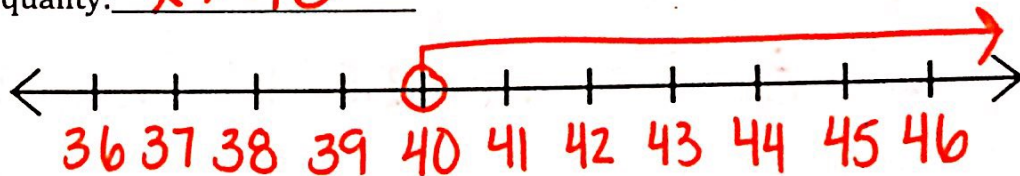
Inequality: $x \geq 40$



40

You must be taller than 40 inches to go on the ride.

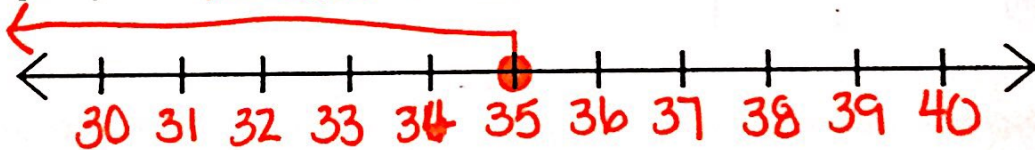
Inequality: $x > 40$



41

The speed limit on Elkins Road is 35 mph.

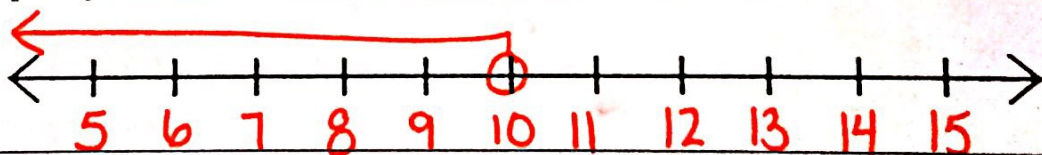
Inequality: $x \leq 35$



42

You owe me less than \$10.

Inequality: $x < 10$



43 Jenny is trying to figure out the best deal for watching movies online.

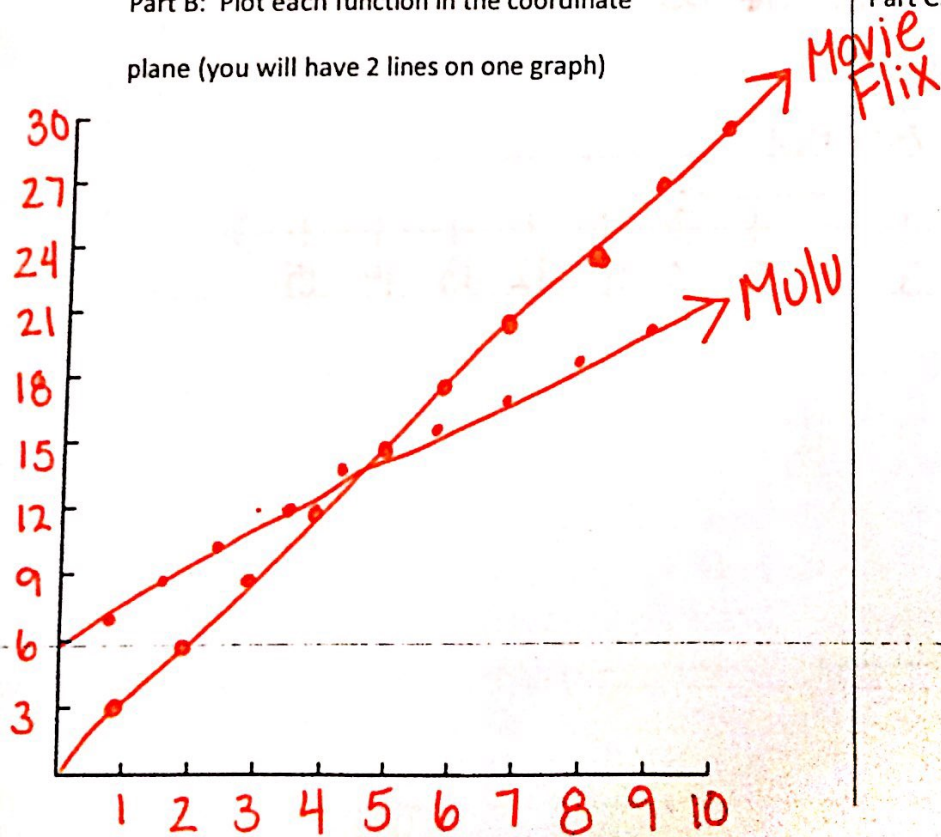
Mulu has a plan with a monthly fee of \$5.00, and charges \$1.50 per movie. Jenny makes a note that this equation is $p = 1.5m + 5$, where p is the amount paid per month and m is the number of movie watched.

Movieflix has a plan with no monthly fee, but charges \$3.00 per movie. Jenny makes a note that this equation is $p = 3m$, where p is the amount paid per month and m is the number of movie watched.

Part A: Make a table for both movie companies showing the monthly cost for watching 0-10 movies.

m (number of movies watched)	1	2	3	4	5	6	7	8	9
Mulu $p = 1.5m + 5$ (amount paid per month)	6.5	8	9.5	11	13.5	15	16.5	18	19.5
Movieflix $p = 3m$ (amount paid per month)	3	6	9	12	15	18	21	24	27

Part B: Plot each function in the coordinate plane (you will have 2 lines on one graph)



Part C: Which is the better deal?

If you plan to watch less than 3 movies, movie flix is the better deal. If you plan to watch more than 3 movies, mulu is the better deal.

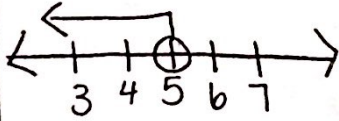
8

Key:

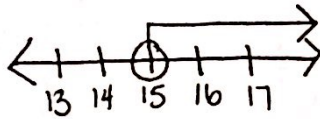
inequalities

Solve the following inequalities AND graph your solution:

(25) $y + 8 < 13$
 $-8 \quad -8$
 $y < 5$



(26) $7n > 105$
 $\div 7 \quad \div 7$
 $n > 15$



$\begin{array}{r} 15 \\ 7 \overline{) 105} \\ \underline{7} \\ 35 \\ \underline{35} \\ 0 \end{array}$

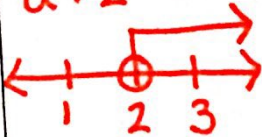
(27) $\frac{b}{3} \geq 10$

~~$\frac{b}{3} \geq 10 \times 3$~~

$b \geq 30$

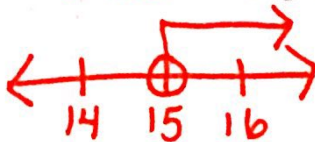


(28) $a + 8 > 10$
 $-8 \quad -8$
 $a > 2$



★ (29) $5 < c - 10$
 $+10 \quad +10$
 $15 < c$

$15 < 16$



$c > 15$

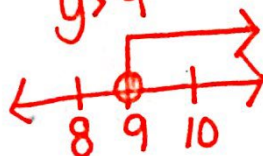
(30) $d \geq 32$
 $\div 4 \quad \div 4$
 $d \geq 8$



(31) $x \div 10 \leq 2$
 $\times 10 \quad \times 10$
 $x \leq 20$

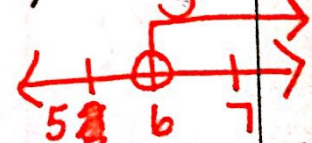


(32) $16 + y > 25$
 $-16 \quad -16$
 $y > 9$



★ (33) $30 < 5g$
 $\div 5 \quad \div 5$

$6 > b < g$



$g > 6$

$b < 7$

Circle any/all numbers in the set that make the inequality or equation true:

(34) $4d \geq 32$

{1, 2, 4, 6, 8, 10, 12}

$4 \times 1 = 4 \geq 32$
 no

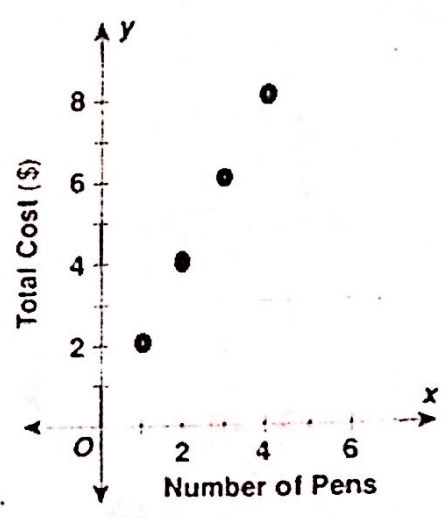
(35) $a + 8 > 10$

{1, 2, 3, 4, 5, 6, 7, 8, 9}

36

For the given graph below, complete a table of values and write a rule:

X (number of pens)	Y (total cost)
1	2
2	4
3	6
4	8
5	10

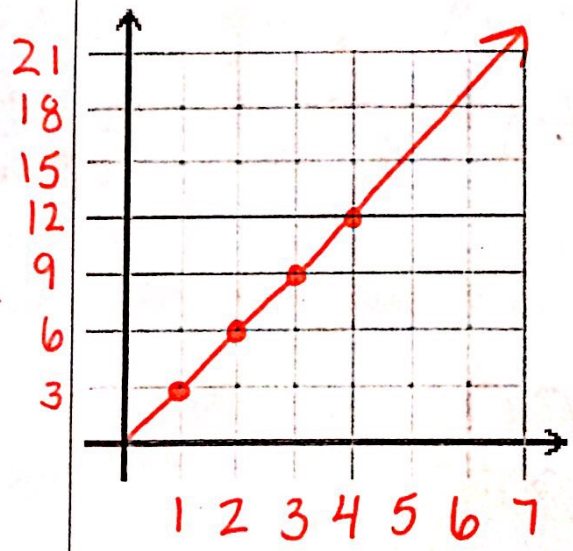


Equation: $y = 2x$

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Using the given equation, complete the table and graph the values:

$y = 3x$



x	y
1	$3 \cdot 1 = 3$
2	$3 \cdot 2 = 6$
3	$3 \cdot 3 = 9$
4	$4 \cdot 3 = 12$

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Which ordered pair could be a solution for $y = 5x$?

- A. (3, 8)
- B. (1, 4)
- C. (5, 25)

$8 = 3 \cdot 5$
 $4 = 5 \cdot 1$
 $25 = 5 \cdot 5$

6