Unit A2 Equations and Inequalities   Name _____
Unit Review Packet

Directions: Do ALL (A) Questions. Check Your Answers to (A) Questions. If ALL (A) Questions are correct, skip (B) Questions and move onto next "I can" statement. If you get any (A) Questions wrong, MAKE CORRECTIONS and do ALL (B) Questions.

1. "I Can Solve Equations by using Inverse Operations to Isolate the Variable on one side of the Equal Sign."

A1. $x + 28 = 53$

B1. $4 = \dfrac{x}{12}$

A2. $4x + 5x - 2x = 4(7)$

B2. $18 = x + 9 - 15$

A3. $42 - 9 = 4 + x - 20$

B3. $25 = x + x + 3x$

2. "I Understand that Solving an Equation means to find the Value that makes it true."

A1. Does $x = 3$?
$4x + 6 = 9x - 9$

B1. Does $x = 7$?
$2x + 13 = 40$

3. "I Can Write and Solve Equations to Represent Real-World Situations."

A1. Ruben and Tariq have 245 downloaded minutes of music. If Ruben has 132 minutes, and Tariq has q minutes, write and solve an equation to represent how many minutes Tariq has.

A2. Sarah and her friends went to jewelry store to buy matching bracelets. If they bought a total of 7 bracelets that cost d dollars each and paid a total of $84, write and solve an equation to represent how much one of the bracelets cost.

B1. Bethany bought c pieces of Halloween candy that she gave out to her 5 friends. If she gave each friend 3 pieces, write and solve an equation to find how many pieces of candy Bethany started with.

B2. Georgia's height is 4 inches less than Sienna's height. If Georgia is 58 inches tall and Sienna is s inches tall, write and solve an equation to find Sienna's height.

4. "I Can Complete a Table that Relates the Independent Variable to the Dependent Variable and Write an Algebraic Equation Rule for the Table."

A1.

Input (x)	Output (y)
13	
17	12
	14
26	21

_____

A2.

Input (x)	Output (y)
4	20
7	
8	40
10	

_____

A3.

Input (x)	Output (y)
27	9
21	7
15	5
9	

_____

B1.

Input (x)	Output (y)
0	
1	9
	36
9	81

_____

B2.

Input (x)	Output (y)
	30
31	37
	41
40	46

_____

B3.

Input (x)	Output (y)
18	9
14	7
10	5
6	

_____

5. "I Can Explain the Difference between and identify the Independent and Dependent Variable in a Real-World Situation."

Circle the **Independent Variable**   and   Underline the **Dependent Variable**

A1: The number of apples in the basket and the weight of the basket

A2: You spend c dollars on h number of hats

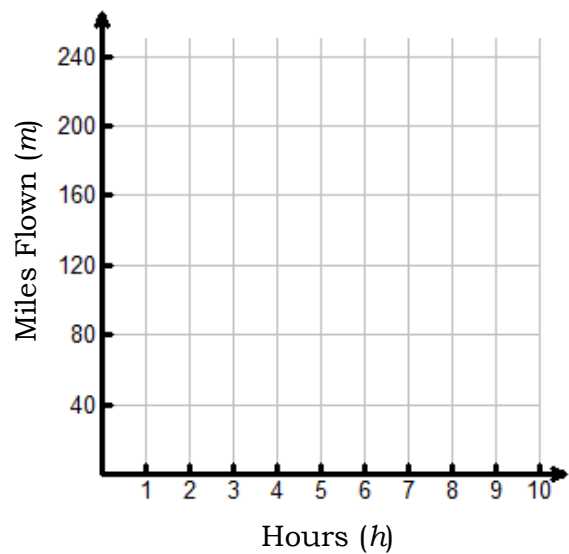**B1:** The amount of money you make and the amount of hours you spend at work.

B2: How old your car is and the value of your car.

Fill out the table, graph find the function equation and answer the questions.

A1. An eagle can fly 20 miles in one hour.

| Flying Eagle					
Hours (h)	2	4	7	9	10
Miles Flown (m)	40		140		

Miles Flown (m) vs Hours (h)

Write an **equation** that relates the hours (h) and miles flown (m).

How many miles will the bird fly in 8 hours? Show your work/thought process.

B1. Bart is 12 years older than James. As Bart gets older, the table shows the relationship between their ages

Bart and James' Ages					
Bart (b)	20	24	33	35	40
James (j)	8		21		

James' age (j) vs Bart's Age (b)
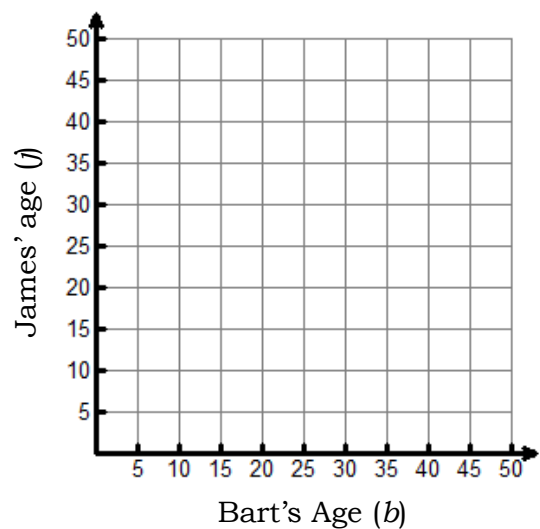
Write an **equation** that relates the Bart's age (b) and James age (j).

How old will James be when Bart is 55? Show your work/thought process.

7. "I Can Write an Equation from a Real-World Situation that Relates Independent and Dependent Variables."

A1. Stu is going to the fair. To get in he must pay $25 for the ticket and then $3 for every ride he goes on. If T represents the total money spent at the fair and r represents the number of rides Stu goes on, write an equation and then complete the function table to represent the money Stu will spend.

Equation: _____

Number of Rides (r)		Total Money (T)
2		
5		
12		

B1. Sally and her friends are going to bowl. It will cost them $2 per game and a one-time fee of $5 for the shoes. If they plan to pay together, let C represent the total cost, let g represent the number of games played, write an equation and then complete the function table to represent the money Sally and her friends will spend.
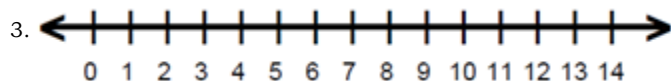
Equation: _____

Number of Games (g)		Total Cost (C)
3		
5		
6		

8. "I Can Write an Inequality and Graph the Solution Set on a Number Line to Represent a condition in a Real-World Situation."

A1.
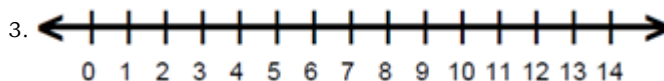 Everything in the store costs below $5.

  1. 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

  2. Write the Inequality: _____

  3.
     0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

A2.
  Sally made at least 8 pies for the holidays.
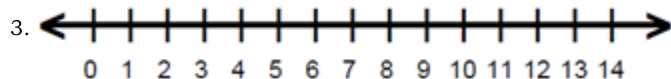
  1. 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

  2. Write the Inequality: _____

  3.
     0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

B1.

The park is no more than 7 miles away

1. 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

2. Write the Inequality: _____

3. ←+++++++++++++++++→
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

B2.

Jim is taller than 6 feet.

1. 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
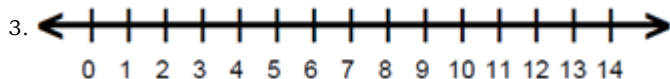
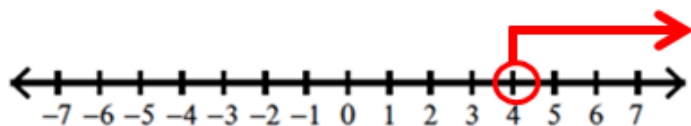2. Write the Inequality: _____

3. ←+++++++++++++++++→
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

9. "I Understand that Solving an Inequality means to find the Set of Values that make it true."

A1. Is the following part of the solution set for the inequality graphed below?
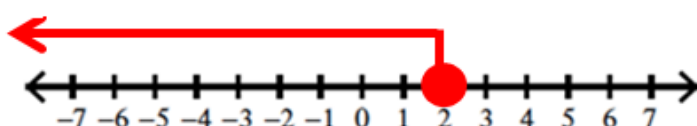
$$\{12, 4, 7, 29\}$$

Circle One: Yes   No

Explain: _____

_____

_____

_____

B1. Is the following part of the solution set for the inequality graphed below?

$$\{-7, 0, -52, 2\}$$

Circle One: Yes   No

Explain: _____

_____

_____

_____

10. "I Can Solve an Inequality for a Variable and Graph the Solution Set on a Number Line."

A1. $\dfrac{c}{9} < 5$

A2. $2 \le -15 + x$

A3. Laverne is making bags of party favors for each of the 6 friends attending her party. She does not want to spend more than $42. If p represents the cost of a party favor, write, solve, and graph an inequality to represent the possible cost of each party favor.

Inequality _____

Part B: Solve the inequality:

Part C: Graph the Solution Set:

Part D: Which of the following could be prices for each party favor? (Circle all that apply)

$6.99   **$7**   **$7.01**   **$5.45**   **$12.99**

B1. $7 \geq \dfrac{x}{4}$ **B**2. $3x < 60$

B3. Bill has 45 baseball cards and John has b baseball cards. If together they have no more than 192 cards, write, solve, and graph an inequality to represent John's cards.

Inequality _____

Part B: Solve the inequality:

Part C: Graph the Solution Set:

Part D: Which of the following could represent John's baseball cards? (Circle all that apply)

100   **148**   **147**   **200**   **150**

Unit A2: Expressions and Inequalities Answer Key

1. "I Can Solve Equations by using Inverse Operations to Isolate the Variable on one side of the Equal Sign."

A1: $x = 25$ Y N   **B1:** $48 = x$ Y N

A2: $x = 4$ Y N   **B2:** $24 = x$ Y N

A3: $49 = x$ Y N   **B2:** $5 = x$ Y N

2. "I Understand that Solving an Equation means to find the Value that makes it true."

A1: Yes Y N   **B1:** No Y N

3. "I Can Write and Solve Equations to Represent Real-World Situations."

A1: $132 + q = 245$ $q = 113$ Y N   **A2:** $7d = 84$ $d = 12$ Y N

B1: $c \div 3 = 5$ $c = 15$ Y N   **B2:** $58 = s - 4$ $62 = s$ Y N

4. "I Can Complete a Table that Relates the Independent Variable to the Dependent Variable and Write an Algebraic Equation Rule for the Table."

A1: 8, 19 $x - 5 = y$ Y N   **B1:** 0, 4 $x \cdot 9 = y$ Y N

A2: 35, 50 $5x = y$ Y N   **B2:** 24, 35 $x + 6 = y$ Y N

**A3:** 3 $x \div 3 = y$ Y N   **B3:** 3 $x \div 2 = y$ Y N

5. "I Can Explain the Difference between and identify the Independent and Dependent Variable in a Real-World Situation."

A1: IV: number of apples DV: weight of basket Y N   **B1:** IV: hours you work DV: money you make Y N

A2: IV: h number of hats DV: c dollars Y N   **B2:** IV: age of car DV: value of car Y N

6. "I Can Explain the Relationship between Independent and Dependent Variables using Tables, Graphs, and Equations."

A1:

Flying Eagle					
Hours (h)	2	4	7	9	10
Miles Flown (m)	40	80	140	180	200
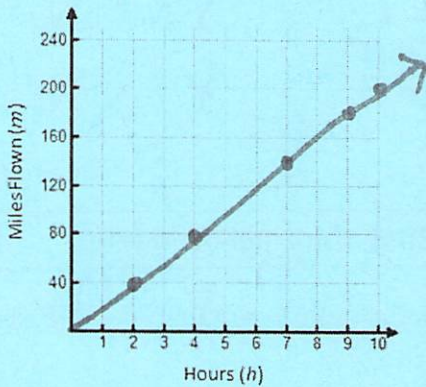
Equation:

$h \cdot 20 = m$

160 miles

Y   N

B1:

Bart and James' Ages					
Bart's Age (b)	20	24	33	35	40
James' Age (j)	8	12	21	23	28
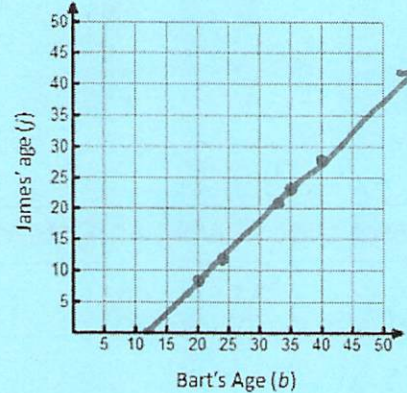
Equation:

$b - 12 = j$

43 years old

Y   N

7. "I Can Write an Equation from a Real-World Situation that Relates Independent and Dependent Variables."
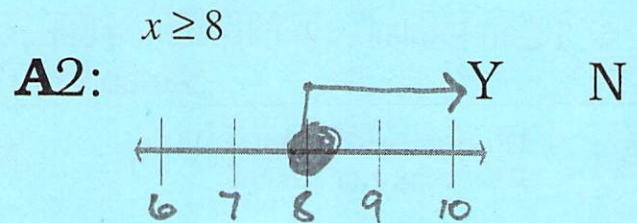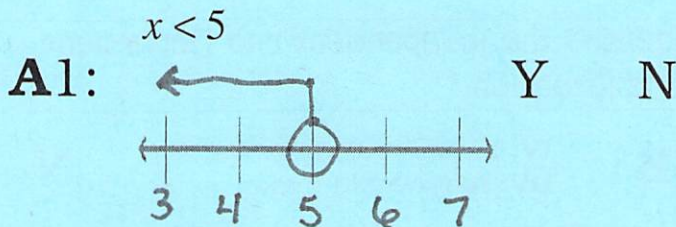
A1: $25 + 3r = T$ Y   N

Number of Rides (r)	$25 + 3 \cdot r$	Total Money (T)
2	$25 + 3 \cdot 2$	31
5	$25 + 3 \cdot 5$	40
12	$25 + 3 \cdot 12$	61

B1: $2g + 5 = C$ Y

Number of Rides (r)	$2 \cdot g + 5$	Total Money (T)
3	$2 \cdot 3 + 5$	11
5	$2 \cdot 5 + 5$	15
6	$2 \cdot 6 + 5$	17

8. "I Can Write an Inequality and Graph the Solution Set on a Number Line to Represent a condition in a Real-World Situation."

A1: $x < 5$

Y   N

A2: $x \geq 8$

Y   N

B1: $x \leq 7$

Y   N

B2: $x > 6$

Y   N
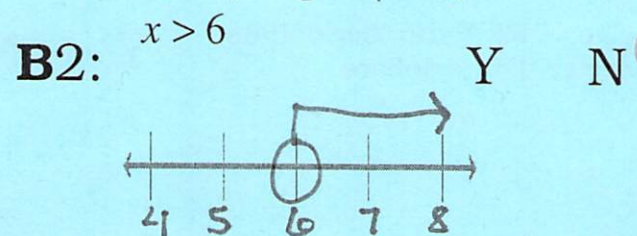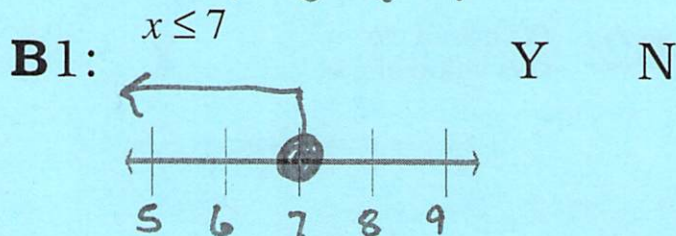
9. "I Understand that Solving an Inequality means to find the Set of Values that make it true."
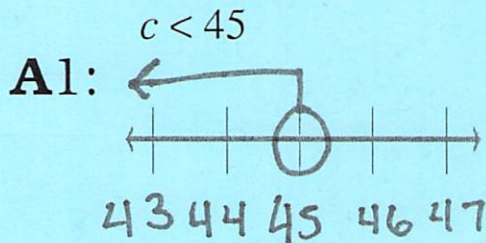
A1: No, 4 should be not included in the solution set because the graph shows the solution set contains values greater than 4.   Y   N
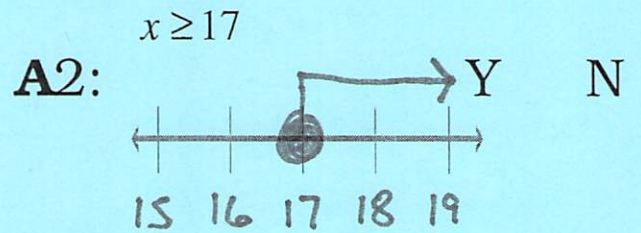
B1: Yes, all values are included in the solution set because the graph shows the solution set contains values less than or equal to 2.   Y   N
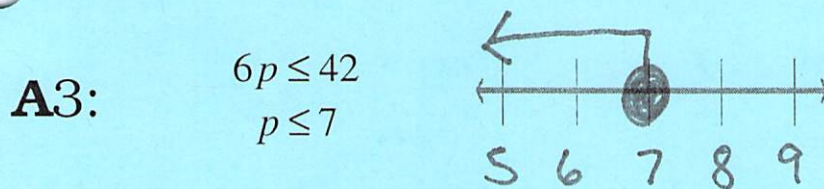
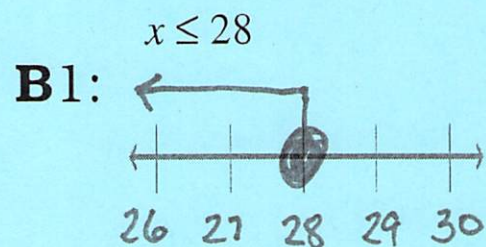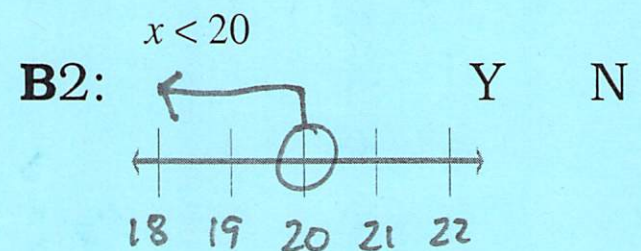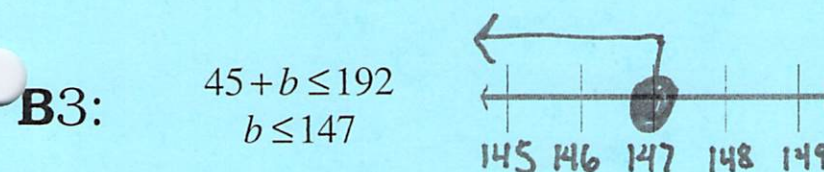## 10. "I Can Solve an Inequality for a Variable and Graph the Solution Set on a Number Line."

A1: $c < 45$ Y   N

43 44 45 46 47

A2: $x \geq 17$ Y   N

15 16 17 18 19

A3: $6p \leq 42$
$p \leq 7$

5 6 7 8 9

$6.99 $7 $5.45   Y   N

B1: $x \leq 28$ Y   N

26 27 28 29 30

B2: $x < 20$ Y   N

18 19 20 21 22

B3: $45 + b \leq 192$
$b \leq 147$

145 146 147 148 149

100   147   Y   N