



Math Study Guide- Grade 7

***** It is important to study on the assignments, worksheets, previous exams, and notes *****

Topic 5 : Solving Problems using Equations and Inequalities

5-1: Write Two-Step Equations

5-2: Solve Two-Step Equations

5-3: Solve Equations Using the Distributive Property

5-4: Solve Inequalities Using Addition or Subtraction

5-5: Solve Inequalities Using Multiplication or Division

5-6: Solve Two-Step Inequalities

5-7: Solve Multi-Step Inequalities

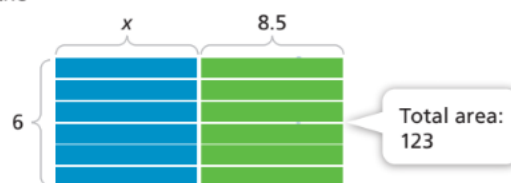
When solving equations written in the form $p(x + q) = r$, you can use the Distributive Property to multiply the two terms in the parentheses by the term outside the parentheses.

$$6(x + 8.5) = 123$$

$$6x + 51 = 123$$

$$6x = 72$$

$$x = 12$$



1. What is the solution to the equation $-5(s - 30) = -10$?

(A) $s = -4$
(B) $s = 8$
(C) $s = 28$
(D) $s = 32$

2. Jade buys a blouse and a skirt for $\frac{3}{4}$ of the original price. She pays a total of \$31.50 for the two items. If the original price of the blouse is \$18, what is the original price of the skirt? Write an equation to represent the situation and use the Distributive Property to solve. Show your work.

**\$24; Sample answer: $\frac{3}{4}(18 + s) = 31.50$;
 $13.50 + 0.75s = 31.50$; $0.75s = 18$; $s = 24$.**

3. The five members of the Traynor family each buy train tickets. During the train ride, each family member buys a boxed lunch for \$6.50. If the total cost of the trip is \$248.50, what is the price of each train ticket?

\$43.20



5. To prepare for a party, Mark buys a small bunch of balloons for \$6.00 and gift bags that cost \$5.15 each. He spends a total of \$72.95 on the balloons and a gift bag for each person invited to the party. Write and solve an equation to find x , the number of people Mark invited to the party. **1 point**

- (A) $x = 13.00$
 (B) $x = 15.33$
 (C) $x = 42.05$
 (D) $x = 61.80$

6. Use the properties of equality to find the value of x in the equation $12(5x - 4.5) = 36$. **1 point**

- (A) $x = -0.3$
 (B) $x = 0.675$
 (C) $x = 1.5$
 (D) $x = 10.5$

7. Solve for x in the inequality $\frac{2}{3}x - \frac{1}{6} > \frac{1}{2}$. Graph the solution on a number line. **2 points**

$x > 1$;

Sample answer:



8. Which graph represents the solution of the inequality $24x - 17x \geq 13x + 15$? **1 point**



Solving multi-step inequalities is similar to solving multi-step equations. You may need to use the Distributive Property, combine like terms, and use inverse relationships and properties to solve them.

$$4(y - 4) + 8 \leq 20$$

$$4y - 16 + 8 \leq 20$$

$$4y - 8 \leq 20$$

$$4y - 8 + 8 \leq 20 + 8$$

$$4y \leq 28$$

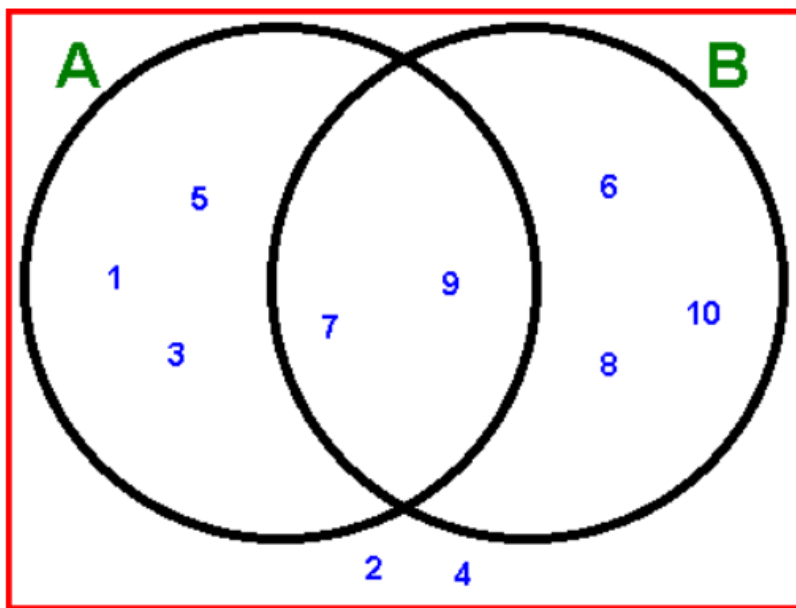
$$\frac{4y}{4} \leq \frac{28}{4}$$

$$y \leq 7$$

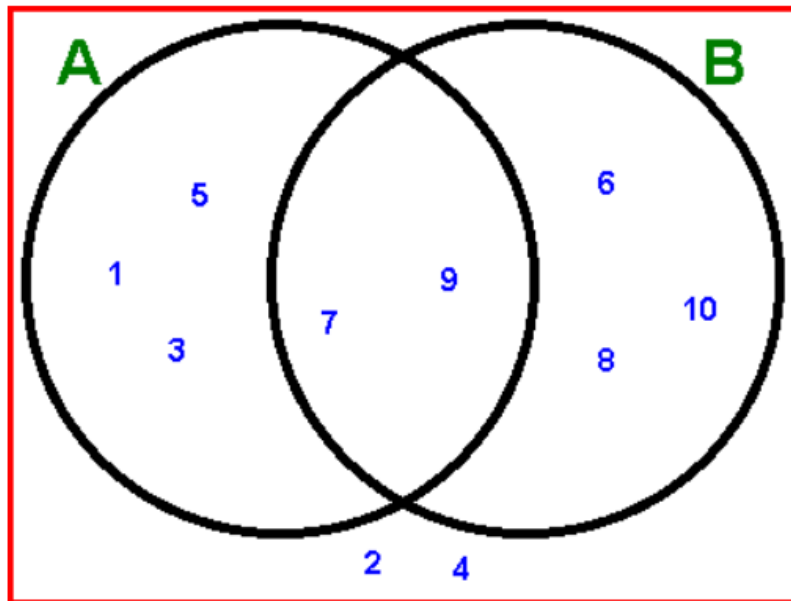


Topic 6 : Sets and Elements

**** It is important to study from your notes and try to solve the following ****



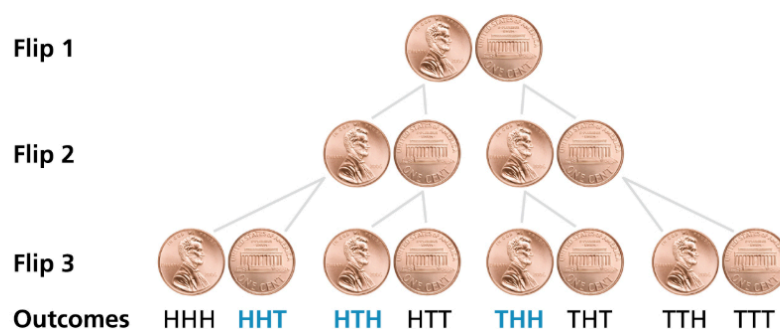
- 1- $A \cap B =$
- 2- $A \cup B =$
- 3- $T \cup B =$
- 4- $T \cap B =$
- 5- $T \cap (A \cup B) =$
- 6- $T \cup (A \cap B) =$
- 7- $T \cap A \cap B =$
- 8- $T \cup A \cup B =$
- 9- $A^c =$
- 10- $B^c =$
- 11- $(A \cap B)^c =$
- 12- $A - B =$
- 13- $T - A =$
- 14- $T - (A \cup B) =$



- 1- $1 \in A$ _____
- 2- $\{1\} \in A$ _____
- 3- $1 \subseteq A$ _____
- 4- $\{1\} \subseteq A$ _____
- 5- $7, 8 \in (A \cap B)$ _____
- 6- $A = \{1, 5, 3, 7, 9\}$ _____
- 7- $B = \{7, 9, 6, 8, 10, 2\}$ _____
- 8- $T = \{1, 3, 5, 7, 9, 6, 8, 10\}$ _____
- 9- $T - (A \cup B) = \{2, 4\}$ _____
- 10- $T - T = \emptyset$ _____

Topic 7 : Probability

🔊 What is the probability that a coin flipped 3 times will land heads up exactly 2 times?



Each of the 8 outcomes is equally likely. **Three** of the 8 outcomes are favorable.

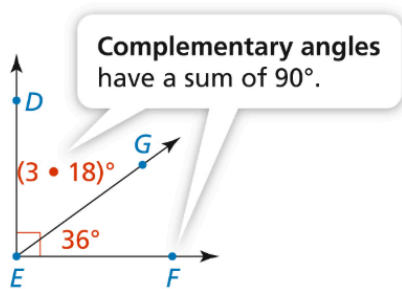
$$P(\text{exactly 2 heads}) = \frac{3}{8} \text{ or } 37.5\%$$



Topic 8 : Solve Problems Involving Geometry

**** Everything solved on this topic during the past two weeks will be included on the final exam****

- A. Ray EG splits right angle DEF into two angles, $\angle DEG$ and $\angle GEF$. Find the value of x .**



$$m\angle DEG + m\angle GEF = 90$$

$$3x + 36 = 90$$

$$3x + 36 - 36 = 90 - 36$$

$$3x = 54$$

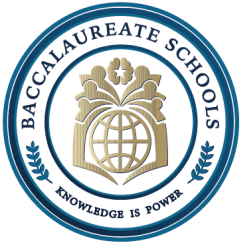
$$\frac{3x}{3} = \frac{54}{3}$$

$$x = 18$$

Check your answer. If $x = 18$, then $3x = 54$. Since $54 + 36 = 90$, the answer checks.

GOOD LUCK!

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