IMB going into IMC Summer Assignment

What: This is a mandatory packet that will both review the content we studied in IMB and prepare you for your upcoming math class (IMC for most of you). It will be graded for accuracy and completion by your math teacher next school year. The content is organized such you can use Khan Academy if you want.

Why: Just like the muscles you would use to play an instrument or play sports, your brain is a muscle that needs practice. In your humanities course you will have a summer reading assignment. This will help your reading skills stay strong throughout the summer. It is important to do the same with mathematics. While we math teachers are convinced that you do math all the time without realizing it, we also want to give you some practice that is a little more like what you see while you are in school. If you do not do any math all summer you're math muscles will get weak and soft! Instead, you should do this assignment to keep your math muscles strong so that you can be ready for next school year.

When: While it is worthwhile to do this packet at any point this summer, your math teacher will be really happy if you spread out the work over the summer. Your muscles will be much stronger if you do some practice every week rather than if you were to do one intense workout and nothing the rest of the summer (ask Mr. Gibson, it's true!). You are required to turn this packet in on the first day of the next school year. **It will be graded for completion and accuracy, and it will count as a minor assessment.** Below is a suggested schedule.

1. Subtract Integers (July 9 - 13)
2. Solve Two-Step Equations (July 16 – 20)
3. Proportional Reasoning (July 23 – August 3)
4. Solve Equations with Variables on Both Sides (August 6 – 10)

Sincerely,

Mr. Friedman

Subtract Integers

Subtract.

1. $16 - 14$

2. $-4 - 2$

3. $9 - (-2)$

4. $-6 - (-8)$

5. $-20 - 10$

6. $-28 - (-13)$

7. $-33 - 33$

8. $28 - 14$

9. $13 - (-63)$

10. WEATHER The highest and lowest recorded temperatures for the state of Texas are $120°F$ and $-23°F$. Find the difference in these extreme temperatures.

ALGEBRA Evaluate each expression if $x = -8, y = 7,$ and $z = -11$.

11. $x - 7$

12. $-13 - y$

13. $-11 - z$

14. $x - z$

15. $z - y$

16. $y - x$

17. ANALYZE TABLES In golf, scores are often stated as the number of strokes above or below par for the course. Four golfers played two rounds of golf during the weekend. The table lists their scores for each round in relation to par.

Golfer	Patrick	Diane	James	Judy
Round 1	–6	+1	+2	–3
Round 2	–2	–4	+7	+6

  a. Find the difference between James's Round 2 score and Diane's Round 2 score.

  b. Find the difference between Patrick's lower score and Judy's higher score.

Solve Two-Step Equations

Solve each equation. Check your solution.

1. $3g + 5 = 17$

2. $9 = 4a + 13$

3. $13 = 5m - 2$

4. $-15 = 2t - 11$

5. $7k - 5 = -19$

6. $13 = 4x - 11$

7. $10 = \frac{z}{2} + 7$

8. $6 + \frac{n}{5} = -4$

9. $4 - 3y = 31$

10. $\frac{k-3}{4} = 10$

11. $\frac{z+5}{7} = -3$

12. $\frac{9+t}{12} = -3$

13. **SHOPPING** Mrs. Williams shops at a store that has an annual membership fee of $30. Today she paid her annual membership and bought several fruit baskets costing $15 each as gifts for her coworkers. Her total was $105. Solve the equation $15b + 30 = 105$ to find the number of fruit baskets Mrs. Williams purchased.

14. **GAMES** A card game has 50 cards. After dealing 7 cards to each player, Tupi has 15 cards left over. Solve the equation $50 - 7p = 15$ to find the number of players.

Write an equation to represent each situation. Then solve the equation.

15. **SCHOOL** Half of the students in Max's class volunteer at the local community center. Fifteen students do not volunteer. If there are 12 boys in Max's class, how many girls are in his class?

16. **SUPPLIES** Tony spent $60.54 and bought 3 packs of notebooks and a calculator. How much does a pack of notebooks cost if a calculator costs $45.87?

Proportional Reasoning Review

1. What is the unit rate if there are 1,760 Calories in 8 servings?

2. A cheetah can run 70 miles per hour. What is this speed in feet per hour?

3. Which size of yogurt shown in the table has the lowest unit price?

Size (oz)	Cost ($)
6	0.89
8	1.04
10	1.69
32	4.79

4. Kevin can travel $22\frac{1}{2}$ miles in $\frac{1}{3}$ hour. What is his average speed in miles per hour?

5. The table shows the cost for ordering a certain number of pizzas. What is the value of x if the cost is proportional to the number of pizzas ordered?

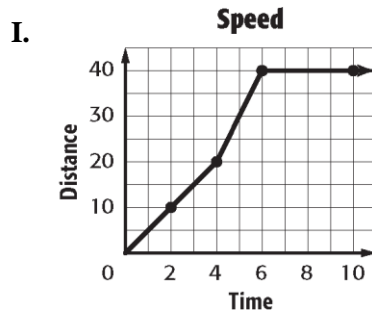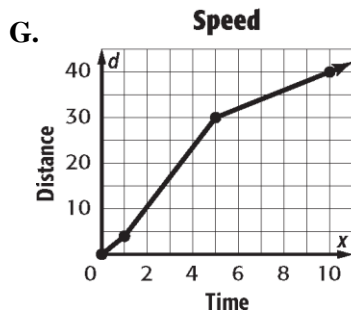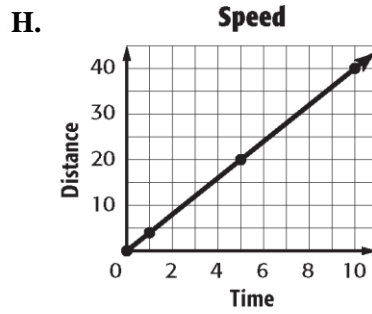| Pizzas Ordered	2	3	4	5
Cost	$19.98	$29.97	$39.96	x

6. What is the constant of proportionality of the linear function?

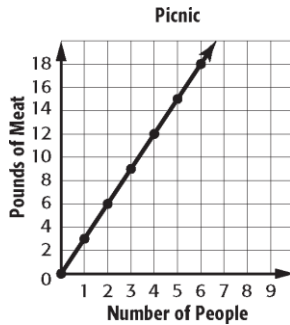| Time, x	1	2	3	4
Cost ($), y	25	50	75	100

7. Solve for Z in the proportion to the right. $\frac{118}{13} = \frac{59}{z}$

8. The table shows the relationship between time and distance. Which graph best
represents the data in the table?

Speed	
Time (s)	**Distance (m)**
1	4
5	20
10	40

F.

Speed

H.

Speed

G.

Speed

I.

Speed
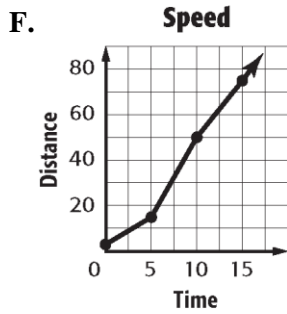
9. What is the constant rate of change (slope) shown in the graph below?

Picnic

10. What is the slope of the line from the table below?

Hour	1	2	4	8
Distance	50	100	200	400

Solve Equations with Variables on Each Side

Some equations, like $3x - 9 = 6x$, have variables on each side of the equals sign. Use the Addition or Subtraction Property of Equality to write an equivalent equation with the variables on one side of the equals sign. Then solve the equation.

Example 1
Solve $3x - 9 = 6x$. Check your solution.

$3x - 9 = 6x$	Write the equation.
$3x - 3x - 9 = 6x - 3x$	Subtraction Property of Equality
$-9 = 3x$	Simplify by combining like terms.
$-3 = x$	Mentally divide each side by 3.

To check your solution, replace x with -3 in the original equation.

Check	$3x - 9 = 6x$	Write the equation.
	$3(-3) - 9 \stackrel{?}{=} 6(-3)$	Replace x with -3.
	$-18 = -18\checkmark$	The sentence is true.

The solution is -3.

Example 2
Solve $4a - 7 = 5 - 2a$.

$4a - 7 = 5 - 2a$	Write the equation.
$4a + 2a - 7 = 5 - 2a + 2a$	Addition Property of Equality
$6a - 7 = 5$	Simplify by combining like terms.
$6a - 7 + 7 = 5 + 7$	Addition Property of Equality
$6a = 12$	Simplify.
$a = 2$	Mentally divide each side by 6.
The solution is 2.	Check this solution.

Exercises
Solve each equation. Check your solution.

1. $6s - 10 = s$　　　　　　　**2.** $8r = 4r - 16$　　　　　　　**3.** $25 - 3u = 2u$

4. $-4b - 5 = 3b + 9$　　　　　**5.** $1.6h - 72 = 4h - 30$　　　　　**6.** $8.5 - 3z = -8z$