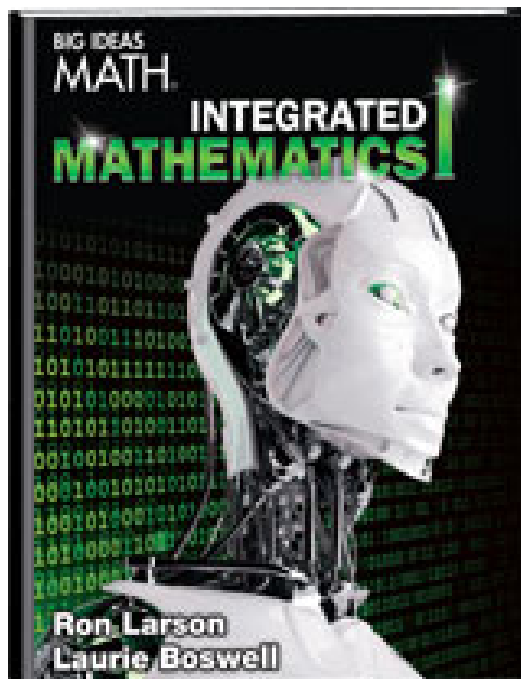


Student Name: \_\_\_\_\_

**REQUIRED**  
**Mathematics Summer Review Packet**  
For  
ALL Students Entering  
Integrated Math I HONORS

**DUE DATE: SPECIFIED ON THE NEXT PAGE**



Medford Public Schools  
**Department of Mathematics**



# *Medford Public Schools*

489 Winthrop Street, Medford, Massachusetts 02155

**Faiza I Khan**

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**Director of Mathematics K - 12**

**781-393-2214**

June 1, 2025

Dear Student/Parent/Guardian:

Welcome to your Summer Mathematics Review Packet, which is **REQUIRED** for all incoming Integrated Math 1 Honors students. **You must complete this packet whether you are a student from an Honors or Standard 8th grade class and are scheduled to take Integrated Math 1 Honors.**

- If you are an 8th Grade Honors student, turn in your work on paper to your Integrated Math 1 Honors teacher on the 1st day of school.
- If you are an 8th Grade CP student wanting to take Integrated Math 1 Honors, please send by Aug 15 to Director of Mathematics, Ms. Khan [fkhan@medford.k12.ma.us](mailto:fkhan@medford.k12.ma.us). Please do not take pictures of the packet to be sent. You should scan all pages using a scanner.

To help students meet with success in Integrated Math I Honors, students are provided with this set of math problems studied in middle school. In today's environment of rigorous academic standards with the newly implemented Common Core, students need to understand core topics to progress in their mathematical learning. This **REQUIRED** packet is intended to help students retain some basic skills they have learned as well as help them gain some new skills; it is designed to help students transition to High School Mathematics.

Students, please note that all honors classes are fast-paced and not only cover more concepts but also cover concepts in greater depth than their College Prep (CP) counterparts. You will need to spend some time this summer preparing for the class. It is important to remember that maintaining academic integrity is incredibly important to your overall success in the course and life. You need to LEARN the material in this packet by watching the linked videos and completing the following practice problems. You are also expected to show your hand-written work completely in the space provided (or attach extra paper when needed). **Just providing answers is not sufficient.** You are expected to complete this packet FULLY by the first day of school, DO NOT USE PHOTOMATH OR SIMILAR APPS to complete this, as it will not prepare you conceptually and mentally for an honors-level math class. The expectations and rubric are on page 3 and 4 of this packet. If you do not understand any portion of the packet, please do not use any other means; plan to stay after school during the first two weeks with your teacher to learn and review.

Good luck as you transition to high school. We look forward to seeing you at MHS.

Sincerely,

*Faiza Khan*

Director of Mathematics K - 12

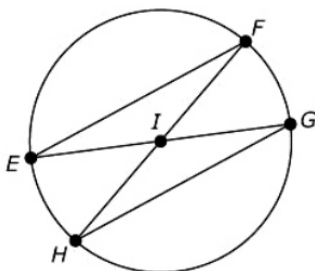
Medford Public Schools

## Sample Question Solved

(Note the type of work shown in this problem. Make sure you show your work to this level)

In circle  $I$ ,  $\overline{EG}$  and  $\overline{FH}$  are diameters, and  $\overline{EF}$  and  $\overline{GH}$  are parallel, as shown.

$$m\angle EIH = 42^\circ.$$



**A)** What is the measure, in degrees, of  $\widehat{FG}$ ? Show or explain how you got your answer.

**Sample Answer:**

The measure is 42 degrees. I got my answer because the arc corresponding with a central angle is the same measure as the central angle, and  $\angle FIG$  is 42 degrees (vertical angles) so its arc  $\widehat{FG}$  is also 42 degrees.

**B)** What is the measure, in degrees, of  $\widehat{EF}$ ? Show or explain how you got your answer.

**Sample Answer:**

$$\frac{(360 - 42 - 42)}{2} = 138, \text{ so } \widehat{EF} \text{ is } 138 \text{ degrees}$$

# **INTEGRATED MATH SUMMER ASSIGNMENT RUBRIC**

|                                  | Conceptual Understanding                                                                                                                                                                                       | Mathematical Skills                                                                                                                                   | Work Habits                                                                                                                                                                                                                                                                                           |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4                                | <ul style="list-style-type: none"> <li>Shows complete conceptual understanding.</li> <li>Demonstrate a strong ability to explain why and how different concepts work and apply in context.</li> </ul>          | <ul style="list-style-type: none"> <li>Includes relevant information effectively.</li> <li>Answers correctly to all parts of the question.</li> </ul> | <ul style="list-style-type: none"> <li>Work is very neat and well organized.</li> <li>Support work is done thoroughly with proper mathematical notations, definitions, properties, and/or theorems. Unknown variables are clearly defined. Conclusions in context are very effective.</li> </ul>      |
| 3                                | <ul style="list-style-type: none"> <li>Shows nearly complete conceptual understanding.</li> <li>Demonstrate a moderate ability to explain why and how different concepts work and apply in context.</li> </ul> | <ul style="list-style-type: none"> <li>Includes relevant information.</li> <li>Answers correctly to most parts of the question.</li> </ul>            | <ul style="list-style-type: none"> <li>Work is neat and organized.</li> <li>Support work is done with proper mathematical notations, definitions, properties, and/or theorems. Unknown variables are vaguely defined. Conclusions in context are somewhat effective.</li> </ul>                       |
| 2                                | <ul style="list-style-type: none"> <li>Shows some conceptual understanding.</li> <li>Weak conceptual explanation and contextual response.</li> </ul>                                                           | <ul style="list-style-type: none"> <li>Include some relevant information.</li> <li>Answers correctly to some parts of the question.</li> </ul>        | <ul style="list-style-type: none"> <li>Work is barely readable and semi-organized.</li> <li>Support work is partially done with little use of mathematical notations, definitions, properties, and/or theorems. Unknown variables are undefined. Conclusions in context are not effective.</li> </ul> |
| 1                                | <ul style="list-style-type: none"> <li>Shows little conceptual understanding.</li> <li>Lack of explanation.</li> </ul>                                                                                         | <ul style="list-style-type: none"> <li>Answers incorrectly to all parts of the question.</li> </ul>                                                   | <ul style="list-style-type: none"> <li>Work is sloppy and disorganized.</li> <li>Support work is missing.</li> </ul>                                                                                                                                                                                  |
| <b>Score / Teacher's Comment</b> |                                                                                                                                                                                                                |                                                                                                                                                       |                                                                                                                                                                                                                                                                                                       |
| Part 1                           |                                                                                                                                                                                                                |                                                                                                                                                       |                                                                                                                                                                                                                                                                                                       |
| Part 2                           |                                                                                                                                                                                                                |                                                                                                                                                       |                                                                                                                                                                                                                                                                                                       |
| Part 3                           |                                                                                                                                                                                                                |                                                                                                                                                       |                                                                                                                                                                                                                                                                                                       |
| Part 4                           |                                                                                                                                                                                                                |                                                                                                                                                       |                                                                                                                                                                                                                                                                                                       |

Total Score: \_\_\_\_\_

Student Name: \_\_\_\_\_

### **Part 1: Solving Equations in One Variable**

#### **Videos to watch:**

<https://www.youtube.com/watch?v=6EE7Zygtsw> (Two-Step Rational Equations)

<https://youtu.be/hQ4RMKKI3lg> (Multiple Step Equations)

**Problems to complete. Justify your answer.**

| #1-6. Solve for the unknown variable.                                                                                                                                                                           |                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| 1. $5 = 7w + 8w + 2$                                                                                                                                                                                            | 2. $-21a + 28a - 6 = -10.2$         |
| 3. $2k - 3(2k - 3) = 45$                                                                                                                                                                                        | 4. $68 = \frac{1}{5}(20x + 50) + 2$ |
| 5. $\frac{1}{5}x - 14 = 1$                                                                                                                                                                                      | 6. $\frac{1}{4}(8b - 80) + b = 70$  |
| 7. A coupon subtracts \$17.95 from the price $p$ of a pair of headphones. After using the coupon, you pay \$71.80 for the headphones. Write and solve an equation to find the original price of the headphones. |                                     |

8. After a party, you have  $\frac{2}{5}$  of the brownies you made left over. There are 16 brownies left. How many brownies did you make for the party? Justify.

9. Jose and Colt are fighting over who gets the biggest solution. Who has the biggest solution? Show support work.

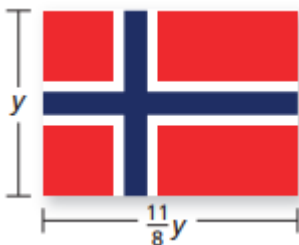
JOSE

$$5x - 3.5 = 12.5$$

COLT

$$\frac{x}{5} + 3 = 12$$

10. The perimeter of the Norwegian flag is 190 inches. What are the dimensions of the flag? Write and solve an equation to answer the question.



11. It takes a plane 4 hours and 15 minutes to fly from Orlando, Florida, to Boston, Massachusetts. The distance between the two cities is 1114 miles.
- a. What is the average speed of the plane **in miles per hour**? Justify your answer.
- b. One mile is approximately 1.6 kilometers. What is the speed of the airplane **in kilometers per hour**? Show support work.

## Part 2: Solving Equations with Variables on Both Sides

### Videos to watch:

<https://www.youtube.com/watch?v=Oxe4T9xR-mI> (Variables on Both Sides)

<https://youtu.be/vCiq-qaZJjI> (Variables on Both Sides with Rational Numbers)

### Problems to complete. Justify your answer.

12.  $-5x - 16 = 9x + x - 1$

13.  $\frac{3}{4}x - 7 = \frac{1}{4}x + 8$

14. 11 less than three times a number is the same as 75 less than the product of -1 and the number. Write an equation and find the value of the number.

15. Graham is hiking at an altitude of 14,040 feet and is descending 50 feet each minute. Max is hiking at an altitude of 12,500 feet and is ascending 20 feet each minute. How many minutes will it take Graham and Max to meet at the same altitude?

16.  $4(6x - 10) = -8(-3x + 5)$

17.  $\frac{3}{4}(48 - 16x) = 4(4 + 2x)$

18. Jaycie has a VIP membership to a movie theater, so she pays \$27 a year and \$6.00 for each movie she sees. Claire doesn't have a membership, so she pays \$8.25 each movie she sees. How many movies would they have to see in a year in order to pay the same amount that year? Justify your answer.

### Part 3: Solving for Angle Measures of the Polygon

**Videos to watch:**

<https://youtu.be/F-2eqNeoRJo>

**Problems to complete. Justify your answer.**

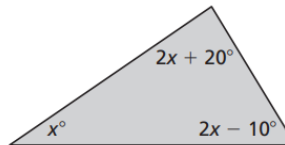
**The sum of the angle measures of a polygon follows the general rule of  $(n - 2) \cdot 180^\circ$ , where the variable  $n$  represents the number of sides.**

**19.** What is the sum of the measure of interior angles of a pentagon?

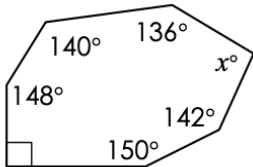
**20.** What is the measure of each interior angle of a regular 20-gon?

**21.** The sum of the interior angles of a polygon is  $1620^\circ$ . How many sides does the polygon have?

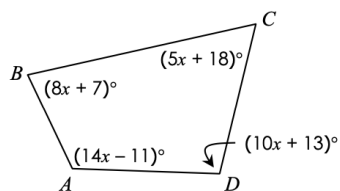
**22.** Write and solve an equation to find the value of  $x$ .



**23.** Write and solve an equation to find the value of  $x$ .



- 24.** Write and solve an equation to find the value of  $x$ . Then, find  $m\angle B$ .



- 25.** One angle of a triangle has a measure of  $66^\circ$ . The measure of the third angle is  $57^\circ$  more than  $\frac{1}{2}$  the measure of the second angle. The sum of the angle measures of a triangle is  $180^\circ$ . What is the measure of the second angle? What is the measure of the third angle? Justify your answers.

## Part 4: Properties of Equality

### Videos to watch:

[https://youtu.be/lqXRTV\\_wHRk](https://youtu.be/lqXRTV_wHRk)

<https://youtu.be/xQ9zfm4ecM>

### Problems to complete.

| #26-34. Write the letter of the property of equality that justifies each statement.                                                                                                                                                                                                                                                                                                                                                                                               |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------|--|--|--|--|--|--|--|--|
| 26. If $a = 2b$ ,<br>then $a - c = 2b - c$                                                                                                                                                                                                                                                                                                                                                                                                                                        |         | <b>A.</b> Addition Property of Equality<br><b>B.</b> Subtraction Property of Equality<br><b>C.</b> Multiplication Property of Equality<br><b>D.</b> Division Property of Equality<br><b>E.</b> Distributive Property<br><b>F.</b> Substitution Property<br><b>G.</b> Reflexive Property<br><b>H.</b> Symmetric Property<br><b>I.</b> Transitive Property |            |         |  |  |  |  |  |  |  |  |
| 27. $8x = 8x$                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
| 28. $3(p - 7) = 3p - 21$                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
| 29. If $-7k = -42$ ,<br>then $k = 6$ .                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
| 30. If $m + n = 15$ and $n = 2$ ,<br>then $m + 2 = 15$                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
| 31. If $\frac{x}{4} = -5$ , then $x = -20$ .                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
| 32. If $w^2 = 2x$ and $2x = y$ ,<br>then $w^2 = y$ .                                                                                                                                                                                                                                                                                                                                                                                                                              |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
| 33. If $c - 9 = -1$ , then $c = 8$ .                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
| 34. If $n = -3$ , then $-3 = n$ .                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
| <b>#35-40. Complete each proof by solving (left column) and stating (right column) the properties of equality. Not all rows may be used.</b>                                                                                                                                                                                                                                                                                                                                      |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
| 35.<br><b>Given:</b> $-8(x - 3) = -32$ ; <b>Prove:</b> $x = 7$                                                                                                                                                                                                                                                                                                                                                                                                                    |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center; padding: 5px;">Statements</th> <th style="width: 50%; text-align: center; padding: 5px;">Reasons</th> </tr> </thead> <tbody> <tr><td style="height: 30px;"></td><td></td></tr> <tr><td style="height: 30px;"></td><td></td></tr> <tr><td style="height: 30px;"></td><td></td></tr> <tr><td style="height: 30px;"></td><td></td></tr> </tbody> </table> |         |                                                                                                                                                                                                                                                                                                                                                          | Statements | Reasons |  |  |  |  |  |  |  |  |
| Statements                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Reasons |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |                                                                                                                                                                                                                                                                                                                                                          |            |         |  |  |  |  |  |  |  |  |

36.

**Given:**  $-16 = \frac{m}{5} - 18$ ; **Prove:**  $m = 10$

| Statements | Reasons |
|------------|---------|
|            |         |
|            |         |
|            |         |
|            |         |

37.

**Given:**  $\frac{2y-1}{-3} = -5$ ; **Prove:**  $y = 8$

| Statements | Reasons |
|------------|---------|
|            |         |
|            |         |
|            |         |
|            |         |

38.

**Given:**  $5n - 42 = 12n$ ; **Prove:**  $n = -6$

| Statements | Reasons |
|------------|---------|
|            |         |
|            |         |
|            |         |
|            |         |

39.

**Given:**  $2x + 30 = -4(5x - 2)$ ; **Prove:**  $x = -1$

| Statements | Reasons |
|------------|---------|
|            |         |
|            |         |
|            |         |
|            |         |
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40.

**Given:**  $18x - 2(3x + 1) = 5x - 16$ ; **Prove:**  $x = -2$

| Statements | Reasons |
|------------|---------|
|            |         |
|            |         |
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