

Student Name: _____

Mathematics Summer Review Packet

Optional for ALL Students Entering 8th Grade Standard
REQUIRED for ALL Students Entering 8th Grade Honors
Fall 2026



Medford Public Schools
Department of Mathematics



Printed Copies Available:

If you prefer a paper copy, please don't hesitate to reach out before the school year ends. The Medford Public Library will have a limited number of paper copies available for students throughout the summer.

SHOW ALL YOUR WORK. USE A SEPARATE SHEET IF NEEDED.

If you are struggling with any topic, look at page 14 for links to videos that may assist.

Week 1:

Integer Operations

1. $-5 + 7 =$

2. $3 + (-5) =$

3. $(-6) + (-7) =$

4. $(-5)(-7) =$

5. $(-4)(2) =$

6. $(-8)(-2) =$

7. $8 - (-3) =$

8. $(-4) - 6 =$

9. $3 + (-9) =$

10. A water well drilling rig has dug to a height of -60 feet after one full day of continuous use.

- a. Assuming the rig drilled at a constant rate, what was the height of the drill after 15 hours?

- b. If the rig has been running constantly and is currently at a height of -143.6 feet, for how long has the rig been running?

Multi-step Equations

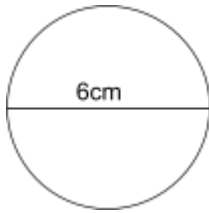
1) $-2x = 8$

2) $5x + 1 = 11$

Week 2:

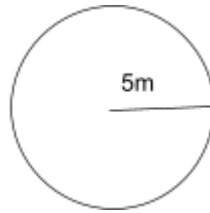
Circles

1. Identify the diameter and radius of each circle.



Radius:

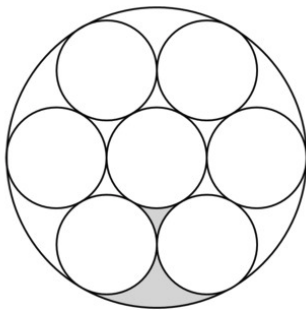
Diameter:



Radius:

Diameter:

3. The figure below is composed of eight circles, seven small circles and one large circle containing them all. Neighboring circles only share one point, and two regions between the smaller circles have been shaded. Each small circle has a radius of 5 cm.



Calculate

- The area of the large circle.
- The area of the shaded part of the figure.

Integer Operations

1) $3 + (-4) =$

2) $-3 + (-3) =$

3) $-10 + (-2) =$

4) $(-1)(-5) =$

5) $(-1)(5) =$

6) $6 - (-8) =$

Week 3:

Integer Operations

1) $-8 + 5 =$

2) $2 + (-8) =$

3) $-4 + (-5) =$

4) $(-3)(-2) =$

5) $(-5)(-6) =$

6) $(-5)(-2) =$

7) $-6 - (-4) =$

8) $-7 - (-2) =$

9) $6 + (-8) =$

Distribute

1) $4(x + 3) =$

--	--

2) $3(y + 4) =$

--	--

3) If we multiply $\frac{x}{2} + \frac{3}{4}$ by 4, we get $2x + 3$. Is $2x + 3$ an equivalent expression to $\frac{x}{2} + \frac{3}{4}$? Explain your answer.

Two Step Equations Using Inverse Operations

1) $3x + 4 = 16$

2) $-3x - 1 = 17$

3) $5 - x = -2$

4) $6x - 9 = 9$

Week 4:

Proportional Relationships

1. Complete the table to complete the proportional relationship.

x	0	1	2	3		5
y	0	5			20	

2. The equation $y=kx$ represents proportional relationships.

What is the equation for the relationship in question #1?

3. Taylor and Anya are friends who live 63 miles apart. Sometimes on a Saturday, they ride toward each other's houses on their bikes and meet in between. One day they left their houses at 8 am and met at 11 am. Taylor rode at 12.5 miles per hour. How fast did Anya ride?

Percents

1. Write the following percentages as decimals.

A. 60% = _____

B. 35% = _____

C. 5% = _____

2. Identify if the following situations are percent **increases** or **decreases**.

A. tax: _____

B. tip: _____

C. discount: _____

D. commission: _____

E. sale: _____

F. mark up: _____

3. You go to a restaurant and spend \$20 on your meal. The tax is 5%, and you leave a 20% tip. Calculate the tax, tip, and total.

Tax (5%): _____

Tip (20%): _____

Total: _____

4. After eating at your favorite restaurant, you know that the bill before tax is \$52.60 and that the sales tax rate is 8%. You decide to leave a 20% tip for the waiter based on the pre-tax amount. How much should you leave for the waiter? How much will the total bill be, including tax and tip? Show work to support your answers.

Week 5:

Integer Operations

1) $3 + (-2) =$

2) $-1 + (-3) =$

3) $-2 + (-4) =$

4) $(6)(-2) =$

5) $(-10)(-4) =$

6) $(5)(-9) =$

7) $4 - (-4) =$

8) $(-3) - 9 =$

9) $3 + (-1) =$

Decimal Operations

1) $54.3 + 26.98 =$

2) $65.9 - 3.4 =$

3) $2.3 \cdot 4.5 =$

4) $3.6(4.5) =$

Probability

- 1) A fair six-sided die is rolled twice. What is the theoretical probability that the first number that comes up is greater than or equal to the second number?

- 2) Angie, Bridget, Carlos, and Diego are seated at random around a square table, one person to a side. What is the theoretical probability that Angie and Carlos are seated opposite each other?

Week 6:

Fraction Operations

1. $-\frac{2}{3} + (-\frac{3}{4}) =$

2. $-\frac{5}{6} - \frac{1}{3} =$

3. $-\frac{1}{4} (-\frac{3}{5}) =$

4. $-\frac{1}{8} \div \frac{2}{3} =$

5. Convert $\frac{3}{5}$ to a decimal.

6. Tom wants to buy some protein bars and magazines for a trip. He has decided to buy three times as many protein bars as magazines. Each protein bar costs \$0.70 and each magazine costs \$2.50. The sales tax rate on both types of items is $6\frac{1}{2}\%$. How many of each item can he buy if he has \$20.00 to spend?

7. The Chemistry Club is experimenting with different mixtures of water with a certain chemical (sodium polyacrylate) to make fake snow. To make each mixture, the students start with some amount of water, and then add $\frac{1}{7}$ of that amount of the chemical, and then 9 more grams of the chemical. The chemical is expensive, so there can't be more than a certain number of grams of the chemical in any one mixture. Write an inequality equation to represent this situation and solve for the unknown value.

Week 7:

Proportional Relationships

1. What are the **two** characteristics of a proportional relationship on a graph?

- _____
- _____

2. Does this table represent a proportional relationship? Why or why not?

x	0	1	3	4	5
y	1	2	6	7	9

3. A text book has the following definition for two quantities to be directly proportional:

We say that y is directly proportional to x if $y=kx$ for some constant k .

For homework, students were asked to restate the definition in their own words and to give an example for the concept. Below are some of their answers. Translate the statements and examples into equations to help you decide if they are correct.

Marcus:

This means that both quantities are the same. When one increases the other increases by the same amount. An example of this would be the amount of air in a balloon and the volume of a balloon.

Sadie:

Two quantities are proportional if one change is accompanied by a change in the other. For example the radius of a circle is proportional to the area.

Ben:

When two quantities are directly proportional it means that if one quantity goes up by a certain percentage, the other quantity goes up by the same percentage as well. An example could be as gas prices go up in cost, food prices go up in cost.

Week 8

Fraction Operations

1. $\frac{1}{3} + \frac{3}{7} =$

2. $\frac{5}{8} - \frac{1}{5} =$

3. $\frac{2}{5}(\frac{4}{9}) =$

4. $\frac{2}{5} \div \frac{1}{4} =$

5. Convert $\frac{7}{9}$ to a decimal.

Word Problems

1. The taxi fare in Gotham City is \$2.40 for the first $\frac{1}{2}$ mile and additional mileage charged at the rate \$0.20 for each additional 0.1 mile. You plan to give the driver a \$2 tip. How many miles can you ride for \$10?

2. Laila tells Julius to pick a number between one and ten. "Add three to your number and multiply the sum by five," she tells him. Next she says, "Now take that number and subtract seven from it and tell me the new number." "Twenty-three," Julius exclaims.
 - a. Write an expression that records the operations that Julius used.
 - b. What was Julius' original number?
 - c. In the next round Leila is supposed to pick a number between 1 and 10 and follow the same instructions. She gives her final result as 108. Julius immediately replies: "Hey, you cheated!" What might he mean?

Week 9:

Integer Operations

$$1) -5 + (-3) =$$

$$2) -4 + (-4) =$$

$$3) (-8) + (-9) =$$

$$4) (9)(-2) =$$

$$5) (-8)(-7) =$$

$$6) (3)(-8) =$$

$$7) 5 - (-9) =$$

$$8) (-2) - 7 =$$

$$9) 6 + (-3) =$$

Two Step Equations Using Inverse Operations

$$1) 8 = 3a - 4$$

$$2) 6y - 5 = 12$$

$$3) \frac{m}{5} + 1 = 6$$

$$4) 17 - x = 4$$

$$5) 4p - 3 = 17$$

$$6) 9c + 1 = 10$$

7) The three seventh grade classes at Sunview Middle School collected the most boxtops for a school fundraiser, and so they won a \$600 prize to share among them. Mr. Aceves' class collected 3,760 box tops, Mrs. Baca's class collected 2,301, and Mr. Canyon's class collected 1,855. How should they divide the money so that each class gets the same fraction of the prize money as the fraction of the box tops that they collected?

8) Fishing Adventures rents small fishing boats to tourists for day-long fishing trips. Each boat can only carry 1200 pounds of people and gear for safety reasons. Assume the average weight of a person is 150 pounds. Each group will require 200 lbs of gear for the boat plus 10 lbs of gear for each person.

a) Create an inequality describing the restrictions on the number of people possible in a rented boat. Graph the solution set.

b) Several groups of people wish to rent a boat. Group 1 has 4 people. Group 2 has 5 people. Group 3 has 8 people. Which of the groups, if any, can safely rent a boat? What is the maximum number of people that may rent a boat?

9)

a) Use long division to find the repeating decimal that represents $\frac{29}{13}$.

b) Take the number obtained by including only the first two digits after the decimal point, and multiply that by 13.

c) Take the number obtained by including only the first four digits after the decimal point, and multiply that by 13.

d) Take the number obtained by including only the first six digits after the decimal point, and multiply that by 13.

e) What do you notice about the product of 13 and decimal approximations of $\frac{29}{13}$ as more and more digits are included after the decimal point?

f) How does what you observed in Part (e) help make sense of what it means for $\frac{29}{13}$ to be equal to the repeating decimal expression you found in the Part (a)?

If you are struggling with a specific topic, scan the corresponding QR code with your cell phone's camera. Each code will lead you to a video explaining the concept.

 Adding & Subtracting Negatives	 Multiplication & Division of Negatives	 Radius & Diameter
 Two Step Equations	 Distributive Property	 Proportional Relationships
 Proportional Equations	 Converting Percent to Decimal to Fraction	 Decimal Operations
 Calculating Tax, Tip & Discounts	 Fraction Operations	