

Summer 2024 Math Packet

Rising 8th Grade (7 Pre-Algebra – Olving/Sandoz –to 8th Grade Algebra)

Suggested Pacing for your summer work

(*The description noted can be found in the top right corner of the pages.)

There is plenty of space to write out your work for each problem.

Week 1	Monday, July 1, 2024	Sunday, July 7, 2024	Pre-Module Assessment 7-8 M2&3 #1-11
Week 2	Monday, July 8, 2024	Sunday, July 14, 2024	Pre-Module Assessment 7-8 M4&5 #1-11
Week 3	Monday, July 15, 2024	Sunday, July 21, 2024	Pre-Module Assessment 7-8 M6 #1-7
Week 4	Monday, July 22, 2024	Sunday, July 28, 2024	7-M3 - Topic Quiz A-1 #s 1-5
Week 5	Monday, July 29, 2024	Sunday, August 4, 2024	7-M5 Topic Quiz B-1 #s 1-5
Week 6	Monday, August 5, 2024	Sunday, August 11, 2024	Pre-Module Assessment 8 M1 #1-11
Week 7	Monday, August 12, 2024	Sunday, August 18, 2024	<p>Lesson 3: Linear Equations in x & Practice 5 - Write equivalent expressions using the properties of exponents.</p> <p><i>Your answer should look like this.</i></p> $3^3 \cdot 3^5 = 3^8$ <p>Khan Academy review if needed: Exponent properties with products (video) Khan Academy</p>
Week 8 (Or ongoing throughout the summer to keep your math brain working!)	Monday, August 19, 2024	Sunday, August 25, 2024	<p>Summer Fact Fluency</p> <p>#1 - Integer Addition #2 - Integer Multiplication (You can use a calculator for the larger numbers - just watch the signs!) #3 - Addition & Subtraction equations - Calculator can be used for decimal section (See example to the left.)</p>

Example: Solve.

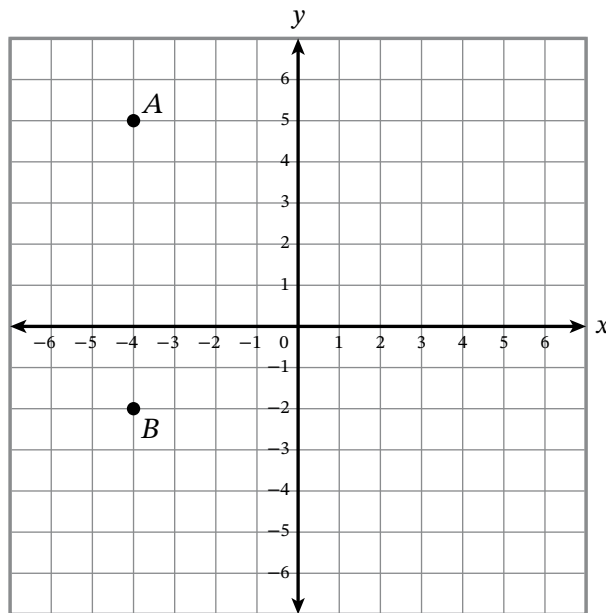
$$\begin{array}{r} x - 3.5 = 8.7 \\ + 3.5 \quad + 3.5 \\ \hline x = 12.2 \end{array}$$

Pre-Module Assessment

Name _____

Date _____

1. What is the distance between point A and point B ?



_____ units

2. Logan has an ice cream recipe that uses cups of sugar and cups of milk.

Part A

The table shows the ratio relationship between the number of cups of sugar and the number of cups of milk in Logan’s recipe. Complete the table.

Number of Cups of Sugar, x	Number of Cups of Milk, y
1	
2	12
	24
6	

Part B

Write the number in the blank that makes the statement true.

Logan needs _____ cups of milk for every 1 cup of sugar.

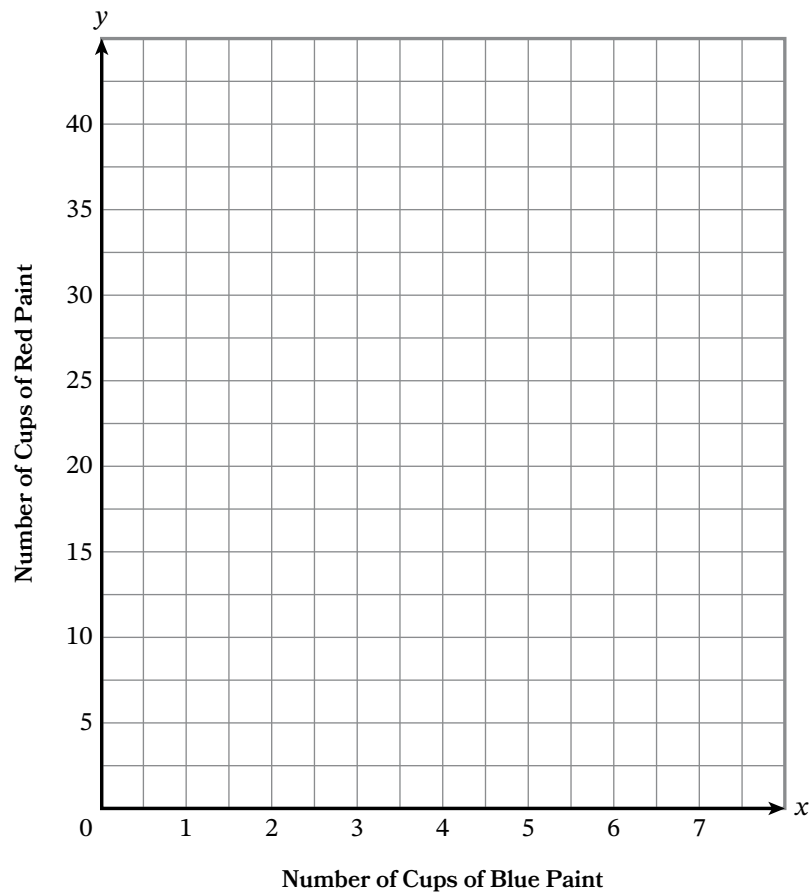
Part C

What is the unit rate associated with the rate from Part B?

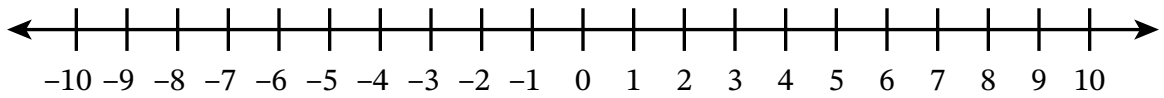
3. Consider the table shown. It describes the ratio relationship between the number of cups of blue paint and the number of cups of red paint to make a shade of purple.

Number of Cups of Blue Paint, x	Number of Cups of Red Paint, y
1	5
2	10
4	20
6	30

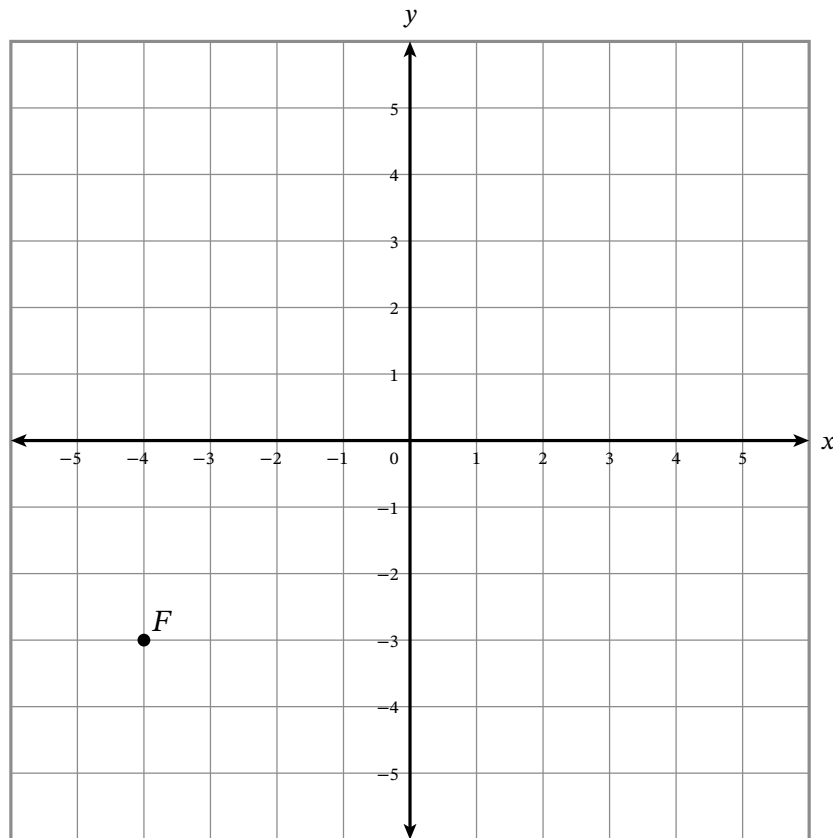
Plot four points in the coordinate plane that represent the pairs of numbers shown in the table.



4. Graph the solutions to $x < 7$ on the number line.



5. Consider the graph.



Part A

What is the ordered pair of point *F*?

(_____ , _____)

Part B

Point *H* is the reflection of point *F* across the *y*-axis. What is the ordered pair of point *H*?

(_____ , _____)

6. Solve the equation $\frac{2}{3}x = 10$.

7. Determine which expression represents each description. Write one expression from the given answer choices in each box.

Description	Expression
The product of 5 and the sum of a number and 2	
The quotient of 5 and the sum of a number and 2	
Two times the difference of a number and 5	
The sum of a number and 5, doubled	

Answer Choices

$2(x + 5)$	$2(x - 5)$	$5(x + 2)$	$5 \div (x + 2)$
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8. Which of these expressions are equivalent to $3(x + 2y) + 4x + 6y$? Choose **all** that apply.

- A. $7x + 8y$
- B. $7x + 12y$
- C. $3x + 2y + 4x + 6y$
- D. $3x + 6y + 4x + 6y$
- E. $3(x + 2y) + 2(2x + 3y)$

9. Complete the equation. Write one number from the given answer choices in the box.

$$\frac{2}{3}x = \frac{2}{15}$$

$$x = \frac{\boxed{}}{\boxed{}}$$

Answer Choices

$\frac{1}{5}$	5	$\frac{15}{2}$
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10. Divide.

$$2\frac{3}{5} \div 1\frac{1}{4}$$

11. Jada has 6 multicolored sports bands. She says that 24% of her sports bands are multicolored. What is the total number of sports bands Jada has?

_____ sports bands

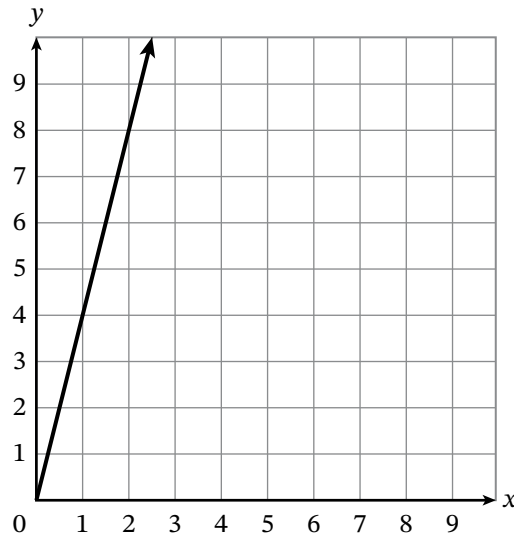
Pre-Module Assessment

Name

Date

1. Nora has 5 more snails than Henry. If s represents the number of snails Henry has, write an expression that represents the number of snails Nora has.

2. Consider the proportional relationship shown in the graph.



Identify the constant of proportionality, or unit rate, in the proportional relationship.

3. Solve the equation for x .

$$\frac{2}{5} = \frac{8}{x}$$

4. Evaluate each expression.

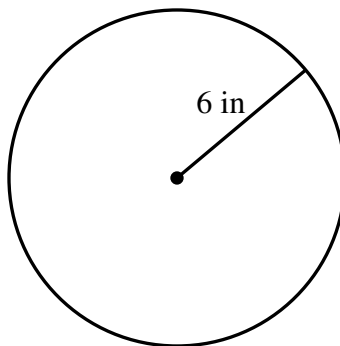
$$10 - 7$$

$$10 - (-7)$$

$$7 - 10$$

$$7 - (-10)$$

5. What is the area of the circle?



- A. 6π sq in
- B. 12π sq in
- C. 36π sq in
- D. 113π sq in

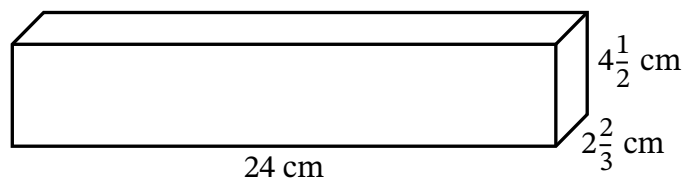
6. Consider the relationship between time t in hours and distance d in miles represented in the table.

Time, t (hours)	Distance, d (miles)
4	48
6	72
8	96

Which equation represents the relationship between t and d ?

- A. $t = \frac{12}{d}$
- B. $t = 12d$
- C. $d = 12t$
- D. $d = \frac{12}{t}$

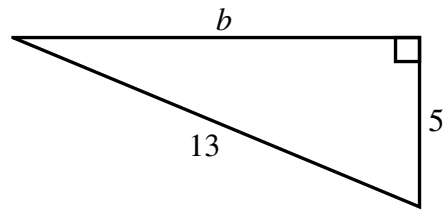
7. Consider the right rectangular prism.



What is the volume of the right rectangular prism?

_____ cubic centimeters

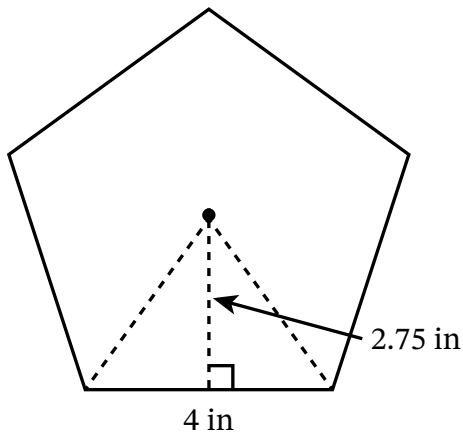
8. Consider the triangle.



What is the value of b ?

9. Solve the equation $5(2x + 3) - 7x = 20$.

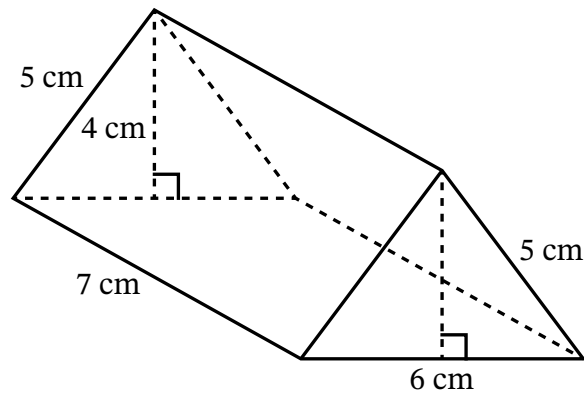
10. Consider the regular pentagon.



What is the area of the regular pentagon?

_____ square inches

11. Consider the right triangular prism shown.



What is the surface area of the right triangular prism?

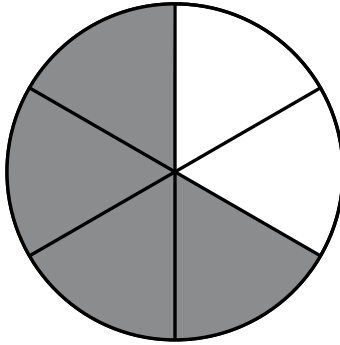
_____ square centimeters

Pre-Module Assessment

Name _____

Date _____

1. The circle is divided into equal-size parts.



What fraction of the circle is shaded?

- A. $\frac{1}{6}$
- B. $\frac{2}{4}$
- C. $\frac{2}{6}$
- D. $\frac{4}{6}$
2. Ava has fiction and nonfiction books. The ratio of the number of fiction books to the number of nonfiction books is 3 : 5. Which statements must be true? Choose **all** that apply.
- A. Of Ava's books, $\frac{3}{5}$ are fiction.
- B. Of Ava's books, 3 out of every 8 are fiction.
- C. Ava has 3 fiction books and 5 nonfiction books.
- D. Ava has $\frac{3}{5}$ as many fiction books as nonfiction books.
- E. Ava has 2 more nonfiction books than fiction books.

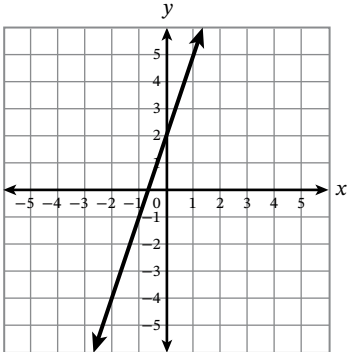
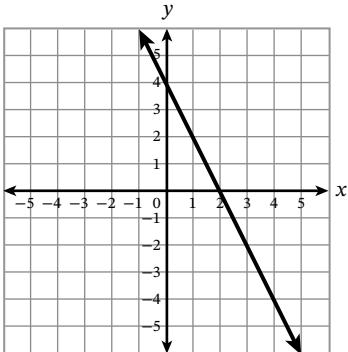
3. Jonas makes school spirit bracelets. Out of every 12 bracelets, 7 are green. He makes 60 bracelets. How many bracelets are green?

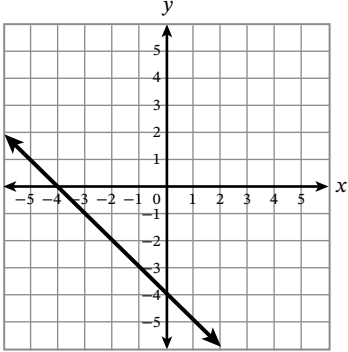
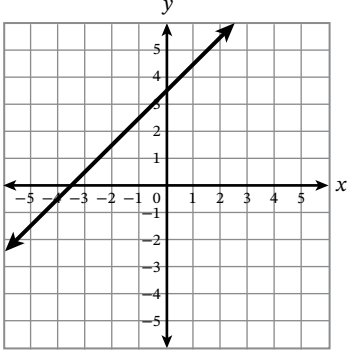
There are _____ green bracelets.

4. Write each fraction in decimal form. Use bar notation if appropriate.

Fraction	Decimal
$\frac{1}{8}$	
$\frac{2}{9}$	

5. Determine whether the slope of each line is positive or negative.

Graph	Positive Slope	Negative Slope
		
		

Graph	Positive Slope	Negative Slope
		
		

6. The equation $f = -2h + 15$ represents the relationship between the temperature f in degrees Fahrenheit and the amount of time that has passed h in hours since the temperature was first measured.

Complete the table.

Time, h (hours)	Temperature, f (degrees Fahrenheit)
2	
5	
	1
	0

7. The equation $y = 0.02x + 8,849$ describes the increase in the height of a mountain, where y represents the approximate height of the mountain in meters and x represents the number of years that have passed since the mountain was first measured.

Circle an answer choice from each list to make the statement true.

In the graph of the equation, the slope of the line represents **(A)** , and the y -intercept of the line represents **(B)** .

A

- the increase in the height of the mountain in meters in 1 year
- the height of the mountain in meters immediately after it was first measured
- the number of years that have passed since the mountain was first measured

B

- the increase in the height of the mountain in meters in 1 year
- the height of the mountain in meters immediately after it was first measured
- the number of years that have passed since the mountain was first measured

Topic Quiz A

Name _____

Date _____

1. Write an expression equivalent to $-\frac{3}{4}(6x - 2y - 12) + 3\left(\frac{2}{3}y - 3\right)$ by using the fewest terms possible.

2. Henry writes the expression $(3y + 6x) - 2\left(x + \frac{5}{2}\right) + 6y$ by using the fewest terms possible.

His work is shown.

Line 1: $3y + 6x - 2x - 5 - 12y$

Line 2: $6x - 2x + 3y - 12y - 5$

Line 3: $4x + 3y - 12y - 5$

Line 4: $4x - 9y - 5$

Henry says $(3y + 6x) - 2\left(x + \frac{5}{2}\right) + 6y$ can be written as $4x - 9y - 5$, but his statement is incorrect.

Part A

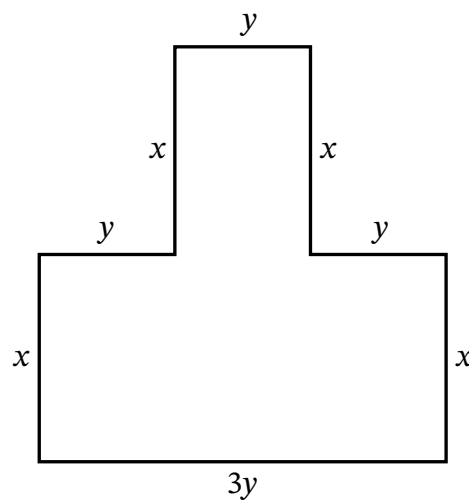
In which line of Henry's work did he make a mistake?

- A. Line 1
- B. Line 2
- C. Line 3
- D. Line 4

Part B

What should Henry's final expression be after he simplifies the original expression? Write the expression by using the fewest terms possible.

3. Consider the figure shown.



Does each expression represent the perimeter of the figure? Choose Yes or No.

	Yes	No
$2(2x + 3y)$		
$x + x + x + x + 3y$		
$4(x + y) + 2y$		
$x + x + x + x + 6y$		
$2(x + 3y)$		
$4x + 3y$		

4. Write one value from the given answer choices in each box to make the statement true. Values may be used more than once.

The expression $10(4h + 3) + 5$ is equivalent to $a(8h + b)$ when $a =$ and $b =$.

Answer Choices

1	4	5	7	10	35	40
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5. A pack of balloons has b blue balloons, g green balloons, and y yellow balloons. Maya buys 3 packs of balloons. Which expressions represent the total number of balloons she buys? Choose **all** that apply.

- A. $b + g + y$
- B. $3b + g + y$
- C. $3(b + g + y)$
- D. $b + b + b + 3(g + y)$
- E. $b + g + y + 2(b + g + y)$
- F. $3(b + g + y) + b + g + y$

Topic Quiz **B**

Name _____

Date _____

1. Lily pays \$7.10, including tax, for 2 boxes of markers. The price of each box before tax is \$3.39.

Part A

How much tax does Lily pay?

- A. \$0.16
- B. \$0.32
- C. \$3.71
- D. \$6.78

Part B

What is the tax rate Lily pays? Round your answer to the nearest tenth of a percent.

_____ %

2. Pedro buys a T-shirt and a pair of shoes. The T-shirt is on sale for 10% off the original price. The shoes are on sale for 30% off the original price.

- The original price of the T-shirt is \$12.50.
- The original price of the pair of shoes is \$22.00.

What is the total discounted price of the T-shirt and the pair of shoes?

- A. \$11.25
- B. \$15.40
- C. \$20.70
- D. \$26.65

3. So-hee buys a bicycle and pays 6.25% in tax. The amount of tax she pays is \$7.75. What is the price of the bicycle before tax?

\$ _____

4. Ava earns 2% commission on every car she sells. How much commission does she earn for selling a car for \$9,475.00?

- A. \$9,285.50
- B. \$7,580.00
- C. \$1,895.00
- D. \$189.50

5. A pack of light bulbs originally priced at \$6.75 is discounted by 8%. Abdul buys 3 packs of light bulbs.

Part A

What is the discounted price of 1 pack of light bulbs?

\$ _____

Part B

How much money does Abdul save off the original prices when he buys 3 packs of light bulbs?

\$ _____

Pre-Module Assessment

_____ Name

_____ Date

1. Which equations represent the comparison statement *63 is how many times as much as 9*? Choose **all** that apply.

A. $63 = \underline{\hspace{2cm}} \div 9$

B. $63 \times \underline{\hspace{2cm}} = 9$

C. $\underline{\hspace{2cm}} \times 9 = 63$

D. $\underline{\hspace{2cm}} \div 63 = 9$

E. $63 \div 9 = \underline{\hspace{2cm}}$

2. Evaluate 85×10^4 .

3. Order the numbers from least to greatest. Write one number in each box.

5.201	5	5.2	5.12	5.1
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Least				Greatest

4. Match each number with its expanded form. Write the letter for the expanded form from the given answer choices in each box.

Number	60.804	6.084	608.04
Expanded Form			

Answer Choices

A	$(6 \times 1) + \left(8 \times \frac{1}{100}\right) + \left(4 \times \frac{1}{1,000}\right)$	D	$(6 \times 10) + \left(8 \times \frac{1}{10}\right) + \left(4 \times \frac{1}{1,000}\right)$
B	$(6 \times 1) + \left(8 \times \frac{1}{10}\right) + \left(4 \times \frac{1}{100}\right)$	E	$(6 \times 100) + (8 \times 1) + \left(4 \times \frac{1}{100}\right)$
C	$(6 \times 10) + \left(8 \times \frac{1}{10}\right) + \left(4 \times \frac{1}{100}\right)$	F	$(6 \times 100) + (8 \times 10) + \left(4 \times \frac{1}{10}\right)$

5. Round the decimal 87.426 to each given place. Write one rounded number from the given answer choices in each box.

Place	Tens	Ones	Tenths	Hundredths
Rounded Number				

Answer Choices

80	87	87.4	87.42	87.43	87.5	88	90
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6. Which expression is equivalent to $2xy + 3x$?

- A. $5xy$
- B. $2y(5x)$
- C. $2(xy + x)$
- D. $x(2y + 3)$

7. Indicate whether each expression is equivalent to -10 , equivalent to 10 , or not equivalent to -10 or 10 .

Expression	Equivalent to -10	Equivalent to 10	Not Equivalent to -10 or 10
$7 + 3$			
$-7 + (-3)$			
$7 + (-3)$			
$-2 \times (-5)$			
-2×5			
$2 \times (-5)$			

8. Which expressions are equivalent to 2^3 ? Choose **all** that apply.

- A. 6
- B. 8
- C. 9
- D. 3×3
- E. $2 \times 2 \times 2$

9. Evaluate $3.5 \div 7$.

10. Evaluate $5.6 + 2.41 - 4.3$.

11. What is the value of $3.4(6.8)$?

- A. 10.2
- B. 20.82
- C. 23.12
- D. 231.2

Name _____

Date _____

Lesson 3: Linear Equations in x

Exit Ticket

1. Is 8 a solution to $\frac{1}{2}x + 9 = 13$? Explain.
2. Write three different equations that have $x = 5$ as a solution.
3. Is -3 a solution to the equation $3x - 5 = 4 + 2x$? Explain.

Name _____

Date _____

For problems 1–12, apply the property of exponents to write an equivalent expression.

1. $10^6 \cdot 10^5$

2. $2^4 \cdot 2^3 \cdot 2^2$

3. $(-4)^8(-4)^2$

4. $(-y)^8(-y)^{10}(-y)^6$

5. $3^2 \cdot 3$

6. $t^{10} \cdot t \cdot t^{12}$

7. $\left(\frac{1}{10}\right)^{15} \left(\frac{1}{10}\right)^{16}$

8. $\left(\frac{1}{a}\right)^5 \left(\frac{1}{a}\right) \left(\frac{1}{a}\right)^5 \left(\frac{1}{a}\right)$

9. $10^{10} \cdot 10^8 \cdot 2^7 \cdot 2^9$

10. $d^3 \cdot c \cdot c \cdot d^3$

11. $(-3)(-5)^3(-3)^7(-5)$

12. $\left(\frac{1}{2}\right)^{28} \left(\frac{1}{4}\right)^{24} \left(\frac{1}{2}\right)^{26} \left(\frac{1}{4}\right)^{30}$

Number Correct: _____

Integer Addition—Round 1**Directions:** Determine the sum of the integers, and write it in the column to the right.

1.	$8 + (-5)$	
2.	$10 + (-3)$	
3.	$2 + (-7)$	
4.	$4 + (-11)$	
5.	$-3 + (-9)$	
6.	$-12 + (-7)$	
7.	$-13 + 5$	
8.	$-4 + 9$	
9.	$7 + (-7)$	
10.	$-13 + 13$	
11.	$14 + (-20)$	
12.	$6 + (-4)$	
13.	$10 + (-7)$	
14.	$-16 + 9$	
15.	$-10 + 34$	
16.	$-20 + (-5)$	
17.	$-18 + 15$	

18.	$-38 + 25$	
19.	$-19 + (-11)$	
20.	$2 + (-7)$	
21.	$-23 + (-23)$	
22.	$45 + (-32)$	
23.	$16 + (-24)$	
24.	$-28 + 13$	
25.	$-15 + 15$	
26.	$12 + (-19)$	
27.	$-24 + (-32)$	
28.	$-18 + (-18)$	
29.	$14 + (-26)$	
30.	$-7 + 8 + (-3)$	
31.	$2 + (-15) + 4$	
32.	$-8 + (-19) + (-11)$	
33.	$15 + (-12) + 7$	
34.	$-28 + 7 + (-7)$	

You may use a CALCULATOR for the large numbers - watch the SIGNS!

Improvement: _____

Integer Multiplication—Round 2

Directions: Determine the product of the integers, and write it in the column to the right.

1.	$-9 \bullet -7$	
2.	$0 \bullet -4$	
3.	$3 \bullet -5$	
4.	$6 \bullet -8$	
5.	$-2 \bullet 1$	
6.	$-6 \bullet 5$	
7.	$-10 \bullet -12$	
8.	$11 \bullet -4$	
9.	$3 \bullet 8$	
10.	$12 \bullet -7$	
11.	$-1 \bullet 8$	
12.	$5 \bullet -10$	
13.	$3 \bullet -13$	
14.	$15 \bullet -8$	
15.	$-9 \bullet 14$	
16.	$-17 \bullet 5$	
17.	$16 \bullet 2$	
18.	$19 \bullet -7$	
19.	$-6 \bullet 13$	
20.	$1 \bullet -18$	
21.	$-14 \bullet -3$	
22.	$-10 \bullet -17$	

23.	$-22 \bullet 14$	
24.	$-18 \bullet -32$	
25.	$-24 \bullet 19$	
26.	$47 \bullet 21$	
27.	$17 \bullet -39$	
28.	$-16 \bullet -28$	
29.	$-67 \bullet -81$	
30.	$-36 \bullet 44$	
31.	$-50 \bullet 23$	
32.	$66 \bullet -71$	
33.	$82 \bullet -29$	
34.	$-32 \bullet 231$	
35.	$89 \bullet -744$	
36.	$623 \bullet -22$	
37.	$-870 \bullet -46$	
38.	$179 \bullet 329$	
39.	$-956 \bullet 723$	
40.	$874 \bullet -333$	
41.	$908 \bullet -471$	
42.	$-661 \bullet -403$	
43.	$-520 \bullet -614$	
44.	$-309 \bullet 911$	

Addition and Subtraction Equations—Round 1

Directions: Find the value of m in each equation.

1.	$m + 4 = 11$	
2.	$m + 2 = 5$	
3.	$m + 5 = 8$	
4.	$m - 7 = 10$	
5.	$m - 8 = 1$	
6.	$m - 4 = 2$	
7.	$m + 12 = 34$	
8.	$m + 25 = 45$	
9.	$m + 43 = 89$	
10.	$m - 20 = 31$	
11.	$m - 13 = 34$	
12.	$m - 45 = 68$	
13.	$m + 34 = 41$	
14.	$m + 29 = 52$	
15.	$m + 37 = 61$	
16.	$m - 43 = 63$	
17.	$m - 21 = 40$	

18.	$m - 54 = 37$	
19.	$4 + m = 9$	
20.	$6 + m = 13$	
21.	$2 + m = 31$	
22.	$15 = m + 11$	
23.	$24 = m + 13$	
24.	$32 = m + 28$	
25.	$4 = m - 7$	
26.	$3 = m - 5$	
27.	$12 = m - 14$	
28.	$23.6 = m - 7.1$	
29.	$14.2 = m - 33.8$	
30.	$2.5 = m - 41.8$	
31.	$64.9 = m + 23.4$	
32.	$72.2 = m + 38.7$	
33.	$1.81 = m - 15.13$	
34.	$24.68 = m - 56.82$	