### Ratios Warm-Up

**Write each ratio in THREE ways.**

<table>
<thead>
<tr>
<th></th>
<th>1. 10 black marbles and 4 blue marbles</th>
<th>2. 15 black marbles and 17 blue marbles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ratio of all the marbles to blue marbles</td>
<td>ratio of blue marbles to all the marbles</td>
</tr>
<tr>
<td></td>
<td>7 : 2</td>
<td>17 : 32</td>
</tr>
<tr>
<td></td>
<td>(\frac{7}{2})</td>
<td>(\frac{17}{32})</td>
</tr>
<tr>
<td></td>
<td>(7 : 2)</td>
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<td>(17 : 32)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>3. 17 blue marbles, 10 violet marbles, 8 red marbles, and 16 yellow marbles</th>
<th>4. 18 black marbles, 11 blue marbles, and 12 brown marbles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ratio of red marbles to violet marbles</td>
<td>ratio of blue marbles to all the marbles</td>
</tr>
<tr>
<td></td>
<td>4 : 5</td>
<td>18 : 11</td>
</tr>
<tr>
<td></td>
<td>(\frac{4}{5})</td>
<td>(\frac{18}{11})</td>
</tr>
<tr>
<td></td>
<td>(4 : 5)</td>
<td>(18 : 11)</td>
</tr>
<tr>
<td></td>
<td>(\frac{4}{5})</td>
<td>(\frac{18}{11})</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>5. 5 black marbles, 17 blue marbles, 10 brown marbles, and 12 white marbles</th>
<th>6. 11 blue marbles and 17 brown marbles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ratio of white marbles to all the marbles</td>
<td>ratio of all the marbles to blue marbles</td>
</tr>
<tr>
<td></td>
<td>(\frac{12}{44})</td>
<td>28 : 11</td>
</tr>
<tr>
<td></td>
<td>(\frac{3}{11})</td>
<td>(\frac{28}{11})</td>
</tr>
<tr>
<td></td>
<td>(\frac{3}{11})</td>
<td>(28 : 11)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>7. 10 black marbles, 12 blue marbles, 7 brown marbles, and 19 white marbles</th>
<th>8. 15 purple marbles, 3 pink marbles, and 12 gray marbles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ratio of black marbles to brown marbles</td>
<td>ratio of purple marbles to all the marbles</td>
</tr>
<tr>
<td></td>
<td>10 : 7</td>
<td>15 : 30</td>
</tr>
<tr>
<td></td>
<td>(\frac{10}{7})</td>
<td>(\frac{15}{2})</td>
</tr>
<tr>
<td></td>
<td>(10 : 7)</td>
<td>(\frac{15}{2})</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>9. 15 black marbles and 11 blue marbles</th>
<th>10. 11 black marbles and 16 blue marbles</th>
</tr>
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<tr>
<td></td>
<td>ratio of black marbles to blue marbles</td>
<td>ratio of black marbles to blue marbles</td>
</tr>
<tr>
<td></td>
<td>15 : 11</td>
<td>11 : 16</td>
</tr>
<tr>
<td></td>
<td>(\frac{15}{11})</td>
<td>(\frac{11}{16})</td>
</tr>
<tr>
<td></td>
<td>(15 : 11)</td>
<td>(\frac{11}{16})</td>
</tr>
</tbody>
</table>

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Notes
Negative Numbers – numbers less than zero

Words that describe negative numbers:
below, under, less, lose (lost), fewer, down

1.) Write 2,000 feet below sea level. \(-2000\)
2.) Write a loss of 8 yards. \(-8\)
3.) A mountain elevation of 1,705 feet. \(1705\)

Opposite numbers – Numbers that are the same distance from zero on a number line but in opposite directions

Example:
Why are -2 and 2 opposite numbers?
They are the same distance apart from "0."

Absolute Value - distance a number is from zero

What is the symbol for absolute value? \(|\_\_\_\_\_\_\_\_\_\_\_\_\_\|

Opposites have the same absolute value

Examples: \(-2\) = 2 or distance from "0" absolute value

Absolute Value

\[-|-2| = -2\]
\[-|-2| = -2\]
Integers – whole numbers and their opposites.
Includes positive and negative whole numbers and zero

Integers less than zero are called **negatives** (-)
Integers greater than zero are called **positive** (+)
Is 0 a positive or negative integer? **neither**

What do we draw on the end of every number line? **arrows** ↔

What do integers tell? **value**
Positive is to the **right** and negative is to the **left** on a number line.

4) What is the opposite of each number? -3 3
9 -9

5) |23| = 23  |64| = 64

Integers
Comparing Integers – On a number line, the number to the left is less than the number to the right.

Graph the integers (-8) and (-7) to compare them.

\[ -8 < -7 \]

Graph the integers (2) and (-3) to compare them.

\[ 2 > -3 \]

Graph the integers (0) and (-1) to compare them.

\[ 0 > -1 \]

6. Compare (-6) and (-4) on a number line.

\[ -6 < -4 \]

7. Compare (-2) and (3) on a number line.

\[ -2 < 3 \]
Ordering Integers – Group from least to greatest
(Also called ascending)

0, 3, -6
Write them from least to greatest.
-6, 0, 3

2, 3, 5, -1, 0
Write them from least to greatest.
-1, 0, 2, 3, 5

8) -2, -4, 1
Write them from least to greatest.
-4, -2, 1

9) -1, 0, 2, -3
Write them from least to greatest.
-3, -1, 0, 2
Homework: Integers/Absolute Value

Name __________________________
Date ________________ Block _____

Use the number line below to answer the following questions.

A B C D E F G H
-1 0 1

Write the letter for the points whose coordinates are given or described.

1. It is the least value integer that is graphed. ______
2. The only integer that is neither positive nor negative. ______
3. It is the greatest value integer that is graphed. ______
4. It has the absolute value of 8. ______
5. Which two letters have the same absolute value? _____
6. Graph the following points on the number line: J at -4 and K at 3.
7. What is the integer for point A? _____

Write the opposite of each integer.

8. -21 ______ 
9. 618 ______
10. 8 ______ 
11. 0 ______

Find the absolute value.

12. \(|9| = _____
13. \(|-39| = _____
14. \(|-94| = _____
15. \(|189| = _____

Replace each _____ with < or > to make a true statement.

16. -57 _____ -75
17. -21 _____ 12
18. \(|-5| _____ 0
19. -2 _____ 5
20. -8 _____ -4
21. 0 _____ -18
22. -36 _____ 36
23. \(|78| _____ -99|

Write an integer to describe the situation.

24. A decrease of 6 members ______
25. A gain of 5 pounds ______
26. A withdraw of $45 ________
Place the following integers in **ascending** order.

27. 100, -188, -190, -100 ____________________________

28. -$8, $11, -$12, $7, -$10, $9 ____________________________

29. List 6 integers between -6 and -15. Write them in **descending** order.

Evaluate.

30. $|6|$  
31. $|-6|$  
32. $-|-7|$  
33. $|-3.74|$  
34. $|0|$

35. $\frac{5}{8}$  
36. $|8 - 3|$  
37. $\left|\frac{-7}{8}\right| + \frac{1}{8}$  
38. $|-1| + 2$  
39. $|5 - 5| + 7 - 1$