Accentuate the Negative (CMP3) – Investigation 1 & 2 Review

Write both an addition sentence AND a subtraction sentence to represent what is shown on the number line.

1)

![Number Line 1](image1)

2)

![Number Line 2](image2)

For problems 3–7, use the following information:

At 10 AM on a winter day in Fairbanks, Alaska, the temperature was $-12^\circ$F. Find the temperature after each of the following temperature changes. Write a number sentence for each.

3) Between 10 AM and noon, the temperature rose $10^\circ$F.

4) Between noon and 3 PM, the temperature rose $15^\circ$F.

5) Between 3PM and 6 PM, the temperature dropped $13^\circ$F.

6) Between 6 PM and 9 PM, the temperature dropped $26^\circ$F.

7) Between 9 PM and midnight, the temperature changed by $-19^\circ$F.
For problems 8-10, explain how you use red and black chips to find the difference. Include all steps in your explanation.

8) \(-8 - (+5)\)  \hspace{1cm} 9) \(+3 - (+9)\)  \hspace{1cm} 10) \(-6 - (-12)\)

Find the missing value.

11) \(\frac{2}{3} - ? = 1\)  \hspace{1cm} 12) \(5 + ? = -3\)  \hspace{1cm} 13) \(-6 - ? = 7\)

14) \(? - 10 = -6\)  \hspace{1cm} 15) \(-3.4 - ? = -5.6\)

For problems 16-26, find each sum or difference. Show your work when necessary.

16) \(-15 - 7\)  \hspace{1cm} 17) \(15 + (-7)\)  \hspace{1cm} 18) \(11 - 23\)

19) \(4 \frac{1}{2} - 7 \frac{7}{8}\)  \hspace{1cm} 20) \(5 \frac{8}{21} - (-3 \frac{1}{7})\)  \hspace{1cm} 21) \(-3 \frac{5}{6} - 4 \frac{1}{12}\)

22) \(3 \frac{16}{25} - 4 \frac{7}{20}\)  \hspace{1cm} 23) \(-4 \frac{7}{20} + 3 \frac{9}{10}\)  \hspace{1cm} 24) \(14.6 + (-3 \frac{1}{5})\)
25) \(-7\frac{3}{4} + 4.125\)  
26) \(5.75 + (-2\frac{1}{8})\)

Each team in problems 27 and 28 answered five questions. The score for four of the questions and the final score are given for each team. Find the point value of the fifth question and tell whether the team answered it correctly or incorrectly. Show your work.

27) The Brains answered a 150-point question correctly, a 200-point question correctly, a 50-point question incorrectly, and a 250-point question incorrectly. The final score was 250 points.

28) The MegaBrains answered a 150-point question correctly, a 100-point question correctly, a 100-point question incorrectly, and a 250-point question correctly. Their final score was 150 points.

For problems 29-31, find two numbers that meet the given conditions.

29) One number is \(-35\). The distance between the two numbers on the number line is 20.

30) The numbers are opposites, or additive inverses. The distance between the two numbers on the number line is 18.

31) The first number is the opposite of 17. The second number is less than the first number. The distance between the two numbers on the number line is 9.
32) Is the statement always true, sometimes true, or never true? Explain your answer THOROUGHLY. Then give 2 examples to support your answer.

A positive number minus a negative number is a positive number.

For problems 33–40, is each number following the inequality a solution of the given inequality?

33) \( v \geq -5; \) 4  
34) \( 0.5 > c; \) 2  
35) \( b < 4; \) -0.5  
36) \( d \leq \frac{17}{3}; \) 5  
37) \( g \leq \frac{12}{5}; \) 3  
38) \( k < 0; \) -1  
39) \( a > 3.2; \) 3  
40) \( x \geq -2.5; \) -2.5

Match each inequality with its graph.

41) \( x < 4 \)  
42) \( x \geq 4 \)  
43) \( x > 4 \)  
44) \( x = 4 \)

For problems 45–48, graph each inequality.

45) \( -9 < w < -3 \)

46) \( -\frac{3}{2} \leq b \)

47) \( 7 \geq a \)

48) \( c > 4.25 \)
49a) Based on the numbers below, choose an appropriate scale for the number line. (Try to pick a scale so that all of your numbers aren’t crammed together on the number line.) Then graph and label each number on the number line. (Remember that a number isn’t graphed unless a point is plotted!) Finally, order the numbers from least to greatest.

\[-\frac{11}{6}; \ -2 \frac{1}{3}; \ -\frac{1}{2}; \ \frac{14}{3}; \ -3 \frac{1}{2}; \ -\frac{5}{6}; \ \frac{4}{3}\]

49b) Name a rational number that is negative but is NOT an integer. ________ Graph it on the number line.

49c) Name an integer that is NOT part of the set of whole numbers. ________ Graph it on the number line.

For problems 50-53, simplify each expression.

50) \quad | -8 | \quad 51) \quad | 79 | \quad 52) \quad | -33 + 19 | \quad 53) \quad | -20 | - | 25 |