Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_ Class\_\_\_\_\_\_\_\_\_\_

**7th grade Unit 1 Study Guide: Operations with Rational Numbers**

**MCC7.NS.1**

1. Which number sentence is modeled on the number line below?

a. 4 + (-3) = 1 b. -3 + 4 = 1 c. 4 – (-3) = 1 d. -3 -4 = 1

1. At 6:00 AM, the temperature outside was -10 degrees. At 6:00 PM, the temperature was 20 degrees. By how many degrees did the temperature increase from 6:00 AM to 6:00 PM? Draw a vertical number line to solve.

 a. 20 b. 25 c. 30 d. 35

 Positive

 Negative

1. Which counter set represents 0 ?

a) b) c) d)

1. Plot the point (-2) and its opposite on the number line below.

-5 -4 -3 -2 -1 0 1 2 3 4 5

1. Molly had $2 in her bank account. She used her debit card to purchase seven Cola’s for $2 each. How much money must she put into her account to bring her balance to $0?
2. Which expression below is the same distance from zero on a number line as $\left|-9\right|?$
	1. $-9-9$ b. $9-9$ c. $-4-(-9)$ d. $0-9$
3. The additive inverse of -40 is \_\_\_\_\_\_\_
	1. $-40$ b. $\frac{4}{10}$ c. $\frac{-1}{40}$ d. $40$

 ***Fill in the missing information from the account ledger below.***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Transaction** | **Withdrawal (-)** | **Deposit (+)** | **Balance** |
| 9-2-2014 | Beginning Balance |  |  | **-**$35.50 |
| 9-3-2014 | Birthday gift from Mom |   | $20.50 | **8.\_\_\_\_\_\_\_\_\_** |
| 9-4-2014 | Wal-mart | $35.25 |  | **9.\_\_\_\_\_\_\_\_\_** |
| 9-5-2014 | Birthday gift from Pat |  | $45.00 |  $-5.25 |
| 9-5-2014 | Gas Station | $ 25.75 |  | **10.\_\_\_\_\_\_\_\_** |
| 9-6-2014 | Pay check |  | $200 | **11.\_\_\_\_\_\_\_\_** |

12. **Find these sums and differences.**

a. $40 – (-13) =$ \_\_\_\_\_\_\_ b. 6$ + (-8) =$ \_\_\_\_\_\_\_

c. $-130 - 85 =$ \_\_\_\_\_\_\_ d. $12- 29 =$ \_\_\_\_\_\_\_

e. $-11 – (-12) =$ \_\_\_\_\_\_\_ f. $-8 + 9 =$ \_\_\_\_\_\_\_

g. $-\frac{1}{4}+-\frac{1}{3}=$ \_\_\_\_\_\_\_\_ h. $-6.5+\left(2.8\right)=$ \_\_\_\_\_\_\_

13. The greatest one-day temperature change in world records occurred at Browning, MT in 1916. The temperature fell from 50$℉$ to -66$℉$ in less than 24 hours. What was the temperature change for that day? Write a number sentence to represent the change and solve.

14. A scuba diver dives to a depth of 225 feet below sea level. To get a closer look at a hammer head shark, he ascends 45 feet. He then descends 90 feet to take a picture of a coral reef. At what depth was the diver when he took the picture? Show your reasoning.

**15.** In Math Fever, students answer questions and earn points for correct responses and lose points for incorrect responses. The Know-It-Alls have a **current score of 250 points**. They answer another series of questions and their scores are listed in the table below. What would their point value be for the final question if they ended with a score of –50?

Don’t forget they are starting with +200.

 **Current Score = 200**

|  |  |
| --- | --- |
| **Point Value** | **Answer** |
| 100 | Correct |
| 150 | Incorrect |
| 50 | Correct |
| 400 | Incorrect |
| ? | ? |
| **Final Score = ‒50** |  |

**16.** What is the sum? (9.99 + 12.22) + (-14.22)

a. -7.99 c. 0

b. 7.99 d. 36.43

**MCC7.NS.2**

17.The signs of factors being multiplied are shown below. Which of the following would result in a product that is a negative number?

1. (+) • (+) • (-)
2. (-) • (+) • (-)
3. (-) • (-) • (-)
4. (+) • (-)

18. Which expression will result in a positive product?

1. (0.1)(-10) C. 0 • -45
2. (-1)(-5) D. $-$ $\frac{1}{2}$ • 0

19. On Wednesday, the temperature changes - 5$℉$ each hour from noon until 10:00 pm. If the temperature at noon was 15 $℉$, what was the temperature at 7:00pm?

20.Pamela’s bank account showed ─$160 on Friday. If there were 5 transactions that occurred after her bank account was at $0, what was the mean (average) amount of each transaction?

21. A small company had a profit/loss of -$350.00 in January. If it continues to have the same profit/loss each month for 4 months, what will be the company’s total profit/loss after 4 months? Show work. Did the company experience a profit or loss? Solve.

22**.** Lauren hiked down a 3,850-foot mountain trail. She stopped 5 times along the way to rest. If she hiked the same distance between each stop, how far down did Lauren hike between each stop? Solve.

23. A loop around a park is 1$\frac{3}{5}$ miles. If Clarice runs $\frac{2}{4}$ of the way around the loop, how far does she run?

a. $\frac{1}{2}$ miles b. $\frac{7}{10}$ miles c. 1$\frac{3}{16}$ miles d. 2$\frac{3}{10}$ miles

24. Simplify the following expression. $-$ $\frac{1}{6}$ ÷ ($ \frac{9}{5}$ • $-$ $\frac{5}{9}$ ) ÷ $-$1

1. $-$1 b.$ -$ $\frac{1}{6}$ c. $\frac{1}{6}$ d. 1

25. Which decimal is equivalent to $ -$ $\frac{5}{6}$ ?

 a. - 0.833 b. 0.56 c. 0.833 d. -0.1667