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
   1. b. c. d.
3. The additive inverse of -40 is \_\_\_\_\_\_\_
   1. b. c. d.

***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. \_\_\_\_\_\_\_ b. 6 \_\_\_\_\_\_\_

c. \_\_\_\_\_\_\_ d. \_\_\_\_\_\_\_

e. \_\_\_\_\_\_\_ f. \_\_\_\_\_\_\_

g. \_\_\_\_\_\_\_\_ h. \_\_\_\_\_\_\_

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. • 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 miles. If Clarice runs of the way around the loop, how far does she run?

a. miles b. miles c. 1 miles d. 2 miles

24. Simplify the following expression. ÷ ( • ) ÷ 1

1. 1 b. c. d. 1

25. Which decimal is equivalent to ?

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