

February Break – Interactive Assignment Multiple Choice**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. A triangle has sides with lengths of $2x - 7$, $5x - 3$, and $2x - 2$. What is the perimeter of the triangle?
- $9x - 12$
 - $5x - 12$
 - $-x - 6$
 - $-3x$
- _____ 2. Simplify $5x^3 + 5(6x^3 - 5b^4)$. Justify your steps using the Commutative, Associative, and Distributive Properties when necessary.
- $35x^6 - 25b^4$
 - $35x^3 - 25b^4$
 - $35x^3 - 5b^4$
 - $5x^3 - 55x^3b^4$
- _____ 3. Combine like terms in the expression $2a - 3b + 5b - a$.
- $3ab$
 - $3a + 2b$
 - $7a - 4b$
 - $a + 2b$
- _____ 4. An item costs n dollars. If the price of the item increases by 25%, the new price can be represented by the expression $n + 0.25n$. Which expression can also represent the new price?
- $n + 1.25$
 - $1.25n$
 - $0.25n$
 - $25n$
- _____ 5. In a board game, Maliq gets x points for landing on a red space, $2x$ points for landing on a blue space, and $5x$ points for going all the way around the board. He lands on 21 red spaces, 19 blue spaces, and goes around the board twice, for a total of $21x + 19 \cdot 2x + 2 \cdot 5x$ points. Which expression also represents Maliq's total points?
- $(21 + 19)2x + 10x$
 - $42x$
 - $69x$
 - $(21 + 19 + 2)(x + 2x + 5x)$
- _____ 6. Hugo buys a \$15 tie. He also buys a \$19 shirt that is on sale for 15% off. The sales tax applied to the purchase is 2%. The expression $(15 + 0.85 \cdot 19)1.02$ represents Hugo's total cost. Write another expression that represents the cost of Hugo's purchase.
- $15(1.02) + 19(0.867)$
 - $(15 + 19) \frac{15}{100}$
 - $(15 + 19 - 0.85)1.02$
 - $15(1.02) + 0.85(19)$
- _____ 7. Solve $\frac{2w + 3}{-3} = 1$.
- $w = -4$
 - $w = -3$
 - $w = 0$
 - $w = 3$
- _____ 8. Estimate $8.35 - 27.516 + 18.814 - 4.16 - 73.8 + 45.6$ by rounding to the nearest integer.
- 33
 - 34
 - 32
 - 33

- _____ 9. Which set of numbers is in order from least to greatest?
- a. $\frac{5}{8}$; 28%; 0.62
 b. 21%, $\frac{1}{3}$; 0.44
 c. $\frac{1}{3}$, 7%, 0.68
 d. 0.42, 16%; $\frac{5}{6}$
- _____ 10. Hisako sells dolls at her doll store. If she sells a doll for \$35, and there is 6% sales tax, what is the total cost of the doll? Round your answer to the nearest cent.
- a. \$37.10
 b. \$41.55
 c. \$32.90
 d. \$2.10
- _____ 11. Solve $x - 3\frac{1}{8} = \frac{5}{12}$.
- a. $x = \frac{13}{24}$
 b. $x = 3\frac{6}{20}$
 c. $x = 3\frac{13}{24}$
 d. $x = 3\frac{17}{24}$
- _____ 12. Which phrase is represented by the inequality?
- $2n + 6 < 10$
- a. two times a number plus six is less than ten
 b. six times a number plus two is greater than ten
- _____ 13. Which expression is equivalent to $8g + 2 + 4g - 2 - 2g$?
- a. $16g + 4$
 b. $10g$
 c. $16g$
 d. $10g + 4$
- _____ 14. Write an equation that models the situation and find its solution.
- It's going to be Lindsay's birthday soon, and her friends Sandy, Jay, and Hakeem have contributed equal amounts of money to buy her a present. They have \$19.50 to spend between them. Determine how much each contributed.
- a. $3x = 19.50$;
 $x = \$58.50$
 b. $3x = 19.50$;
 $x = \$29.25$
 c. $3x = 19.50$;
 $x = \$5.50$
 d. $3x = 19.50$;
 $x = \$6.50$
- _____ 15. Subtract. Express your answer in simplest form. $-\frac{3}{9} - \frac{6}{9}$
- a. $-\frac{1}{3}$
 b. $-\frac{1}{2}$
 c. -1
 d. $\frac{1}{3}$

- _____ 22. At soccer practice, Natalie ran laps and practiced dribbling. After practice, she had a granola bar, a piece of fruit, and some fruit juice. Use the information in the table to determine the total Calorie change.

	Calories	Calories Burned
Running Laps		158
Dribbling		106
Granola Bar	193	
Fruit	46	
Juice	41	

- a. -544
b. 16
- c. 544
d. -16
- _____ 23. A restaurant had n kg of sugar in its stock. Then, $5\frac{3}{5}$ kg sugar was used to make the first dessert on the menu. Next, $3\frac{1}{2}$ kg sugar was used to make the second dessert on the menu. Write an expression to show how many kilograms of sugar were left in the stock, and then simplify the expression.
- a. $n - (5\frac{3}{5} - 3\frac{1}{2}) = n - 2\frac{1}{10}$
b. $n - (5\frac{3}{5} + 3\frac{1}{2}) = n - 9\frac{1}{10}$
- c. $n + (5\frac{3}{5} + 3\frac{1}{2}) = n + 9\frac{1}{10}$
d. $n - (5\frac{3}{5} + 3\frac{1}{2}) = n - 8\frac{1}{10}$
- _____ 24. If you can type 1080 words in 40 minutes, then how many words per minute can you type?
- a. 180 words/min
b. 31 words/min
- c. 27 words/min
d. 9 words/min
- _____ 25. The cost of 24 pounds of cat food is \$54. What is the cost per pound of cat food?
- a. \$2.20
b. \$2.50
- c. \$2.00
d. \$2.25
- _____ 26. Carmelo puts \$2,200.00 into savings bonds that pay a simple interest rate of 3.4%. How much money will the bonds be worth at the end of 5.5 years?
- a. \$7,136.80
b. \$2,552.20
- c. \$2,611.40
d. \$411.40
- _____ 27. A new house costs \$260,000.00. Sara wants to buy the house and needs \$35,560.00 for a down payment. Sara currently has \$28,000.00 in a savings account that earns 9% simple interest. How long must she keep the money in the savings account in order to have enough for the down payment on the house?
- a. 92.1 years
b. 14 years
- c. 3 years
d. 3 months
- _____ 28. The sales tax in New York is 8.25%. About how much will a \$65.95 pair of shoes cost, including sales tax?
- a. \$7
b. \$59
- c. \$73
d. \$84

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- ____ 29. Angie has \$1,032 in her savings account. If the bank pays 3.5% simple interest on savings, how much does she earn in one year?
- a. \$36.12
 - b. \$46.44
 - c. \$294.86
 - d. \$361.20
- ____ 30. It took 3.3 hours for Marianne to drive 178.2 miles. What was her average speed for the trip?
- a. 54 mi/h
 - b. 55 mi/h
 - c. 59.3 mi/h
 - d. 60 mi/h

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February Break Assignment Answer Sheet

(Enter the letter only in capitals)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

24. _____

25. _____

26. _____

27. _____

28. _____

29. _____

30. _____

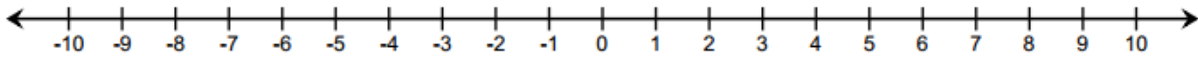
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February Break Assignment – Extended Response

1. Diamond used a number line to add. She started counting at 10, and then she counted until she was on the number -4 on the number line.
 - a. If Diamond is modeling addition, what number did she add to 10? Use the number line below to model your answer.



- b. Write a real-world story problem that would fit this situation.

- c. Use absolute value to express the distance between 10 and -4.

2. The table below shows the temperature changes Monday morning in Bedford, New York over a 4-hour period after a cold front came through.

- a. If the beginning temperature was -13°F at 5:00 a.m., what was the temperature at 9:00 a.m.?

Change in Temperature	
5:00 a.m. – 6:00 a.m.	-3°F
6:00 a.m. – 7:00 a.m.	-2°F
7:00 a.m. – 8:00 a.m.	-6°F
8:00 a.m. – 9:00 a.m.	7°F

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- b. The same cold front hit Hartford, Connecticut the next morning. The temperature dropped by 7°F each hour from 5:00 a.m. – 9:00 a.m. What was the beginning temperature at 5:00 a.m. if the temperature at 9:00 a.m. was -10°F ?

c.

at the correct answer. How is this possible? Explain.

3. Kay's mother taught her how to make handmade ornaments to sell at a craft fair. Kay rented a table at the fair for \$30 and set up her work station. Each ornament that she makes costs approximately \$2.50 for materials. She sells each ornament for \$6.00.

a. If x represents the quantity of ornaments sold at the craft fair, which of the following expressions would represent Kay's profit? (Circle *all* choices that apply.)

A. $-30 + 6x - 2.50x$

C. $4.50x - 30$

B. $6x - 30 - 2.50x$

D. $3.50x - 30$

- b. Kay does not want to lose money on her business. Her mother told her she needs to sell enough ornaments to at least cover her expenses (costs for materials and table rental). Kay figures that if she sells 8 ornaments, she covers her expenses and does not lose any money. Do you agree? Explain and show work to support your answer.

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- c. Kay feels that if she earns a profit of \$40.00 at this craft fair, her business will be successful enough to attend other craft fairs. How many ornaments does she have to sell to earn a \$40.00 profit? Write and solve an equation; then explain how the steps and operations used in your algebraic solution compare to an arithmetic solution.

4. It is a Saturday morning and Jeremy has discovered he has a leak coming from the water heater in his attic. Since plumbers charge extra to come out on weekends, Jeremy is planning to use buckets to catch the dripping water. He places a bucket under the drip and steps outside to walk the dog. In half an hour the bucket is $\frac{1}{5}$ of the way full.
- a. What is the rate at which the water is leaking?

- b. Write an equation that represents the relationship between the number of buckets filled, y , in x hours.

- c. What is the longest that Jeremy can be away from the house before the bucket will overflow?

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5. Use the following expression below to answer parts (a) and (b).

$$4x - 3(x - 2y) + \frac{1}{2}(6x - 8y)$$

- a. Write an equivalent expression in standard form and collect like terms.

- b. Express the answer from part (a) as an equivalent expression in factored form.

6. In August, Cory begins school shopping for his triplet daughters.

- a. One day, he bought 10 pairs of socks for \$2.50 each and 3 pairs of shoes for d dollars each. He spent a total of \$135.97. Write and solve an equation to find the cost of one pair of shoes.

- b. The following day Cory returned to the store to purchase some more socks. He had \$40 to spend. When he arrived at the store, the shoes were on sale for $\frac{1}{3}$ off. What is the greatest amount of pairs of socks Cory can purchase if he purchased another pair of shoes in addition to the socks?

7. Use the following information to solve the problems below.

- a. The largest side of a triangle is six more units than the smallest side. The third side is twice the smallest side. If the perimeter of the triangle is 25 units, write and solve an equation to find the lengths of all three sides of the triangle.

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- b. The length of a rectangle is $(x + 3)$ inches long, and the width is $3\frac{2}{5}$ inches. If the area is $15\frac{3}{10}$ square inches, write and solve an equation to find the length of the rectangle.

8. Kacey and her three friends went out for lunch, and they wanted to leave a 15% tip. The receipt shown below lists the lunch total before tax and tip. The tip is on the cost of the food plus tax. The sales tax rate in Pleasantville is 8.75%.



- a. Use mental math to estimate the approximate total cost of the bill including tax and tip to the nearest dollar. Explain how you arrived at your answer.

- b. Find the actual total of the bill including tax and tip. If Kacey and her three friends split the bill equally, how much will each person pay including tax and tip?

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9. The water level in a swimming pool increased from 4.5 feet to 6 feet. What is the percent increase in the water level rounded to the nearest tenth of a percent? Show your work.

10. Gary's contract states that he must work more than 20 hours per week.
- a. Write an algebraic inequality representing the number of hours, h , Gary can work in a week.

- b. Gary gets paid \$15.50 per hour in addition to a weekly salary of \$50. This week he wants to earn more than \$400. Write an inequality to represent this situation.

- c. Solve and graph the solution from part (b).