

2017-2018
Math Summer Packet
Grade 8

Name: _____

7th Grade Math Teacher: _____

8th Grade Math Teacher: _____

Part 1: Multiple Choice

Directions: Answer every question.

(1) Last week Dino spent \$18 to bowl 4 games. This week he spent \$27 to bowl 6 games. Dino owns his bowling ball and shoes, so he only has to pay for each game that he bowls. If each of these bowling games cost the same amount of money, what is the constant of proportionality between the money spent and the number of games played?

- a. 1.5
- b. 2.0
- c. 4.5
- d. 9.0

(2) The cost of oranges in a grocery store is directly proportional to the number of oranges purchased. Jerri paid \$2.52 for 6 oranges. If p represents the cost, in dollars, and n represents the number of oranges purchased, which equation best represents this relationship?

- a. $p = 0.42n$
- b. $p = 2.52n$
- c. $p = 6n$
- d. $p = 15.12n$

(3) Bananas cost \$0.45 per pound. What equation is used to find C , the total cost of p pounds of bananas?

- a. $C = 0.45p$
- b. $C = p + 0.45$
- c. $0.45C = p$
- d. $0.45 + C = p$

(4) The table shows the distance that a train traveled over 7.5 hours.

Number of Hours	Number of Miles
2	80
3.5	140
5	200
7.5	300

What is the speed of the train?

- a) 4 miles per hour
- b) 4 hours per mile
- c) 40 miles per hour
- d) 40 hours per mile

(5) Matthew worked 8.5 hours and earned \$102. At that rate, how much will Matthew earn if he works 19 hours?

- a. \$222
- b. \$224
- c. \$226
- d. \$228

(6) In which situation can a constant of proportionality be identified?

- a. Allison earns \$8 per hour for h hours and an \$8 bonus for each cell phone plans she sells.
- b. Ben buys x cans of dog food for \$1.25 each and uses a coupon for \$7.00 off his entire purchase.
- c. Claire orders b books online for \$4.50 each plus shipping charges of \$0.30 for each book.
- d. John runs 3 miles per day for m days in a week and bicycles 20 miles/day the remaining days in the week.

(7) Jill and Kelly work as consultants and get paid per project. Jill gets paid a project fee of \$25 plus \$10 per hour. Which expression shows how much Jill will get paid after h hours?

- a. $25 + 10h$
- b. $25h + 10$
- c. $25 + 10 + h$
- d. $25h + 10h$

(8) Erica bought a car for \$24,000. She had to add Pennsylvania's sales tax of 6%. The total price of the car is closest to?

- a. \$25,500
- b. \$26,000
- c. \$25,000
- d. \$24,000

(9) A small submarine started its dive at sea level and descended 30 feet per minute. Which integer represents the submarine's depth after seven minutes?

- A. -210 feet
- B. -23 feet
- C. 37 feet
- D. 210 feet

(10) A video game is on sale for 30% off the regular price of \$50.00. What is the sale price of the video game?

- a. \$20.00
- b. \$30.00
- c. \$33.00
- d. \$35.00

(11) Which expression is equivalent to $4(3x + 5)$?

- a. $7x + 9$
- b. $7x + 5$
- c. $12x + 5$
- d. $12x + 20$

(12) A set of magnets cost \$6.40. The store is offering a 10% discount on the magnets. Alicia buys 2 sets of magnets with the discount. Assuming there is no tax, how much money does Alicia pay for the magnets?

- a. \$5.76
- b. \$11.52
- c. \$12.16
- d. \$12.80

(13) Evaluate the expression when $x = 3$ and $y = 4$:

$$24x - 9 + 5y - 2$$

- a. 63
- b. 81
- c. 90
- d. 100

(14) Martina wants to earn more than \$80.00 selling ice cream cones. She has already earned \$24.00. Let x represent the number of ice cream cones to be sold at \$2.00 each. Which statement represents how many more ice cream cones Martina needs to sell to earn more than \$80.00.

- a. $x > 28$
- b. $x = 28$
- c. $x < 28$
- d. $x \leq 28$

(15) A mover notes the weights of a table and 4 chairs and records $t + 4c \geq 100$ on his invoice. What is he communicating?

- a. The table and the 4 chairs each weigh more than 100 pounds
- b. The table and 4 chairs weigh at most 100 pounds
- c. The table and 4 chairs weigh around 100 pounds, give or take a little
- d. The table and 4 chairs weigh at least 100 pounds

(16) Will bought 24 juice boxes for \$7.30. Which equation can be solved to find the amount each juice box costs?

- a. $24b = 7.3$
- b. $24/b = 7.3$
- c. $7.3b = 24$
- d. $7.3/b = 24$

(17) Which expression represents "twice a number less than 5"

- a. $2n - 5$
- b. $5 - 2n$
- c. $n + 2 - 5$
- d. $5 - n + 2$

(18) Which is equivalent to the expression below?

$$3p + 4 + p + 12 + 3q$$

- a. $4P + 3q + 16$
- b. $4p + 10q$
- c. $6p + q + 16$
- d. $20p + 3q$

(19) The price of mailing a small package is \$0.32 for the first ounce and \$0.21 for each additional ounce. Sandra put \$1.16 to mail her package. How much did it weigh?

- a. 4 ounces
- b. 5 ounces
- c. 6 ounces
- d. 7 ounces

(20) Which angles are complementary?

- a. 72 degrees and 18 degrees
- b. 90 degrees and 90 degrees
- c. 114 degrees and 66 degrees
- d. 36 degrees and 36 degrees

(21) One of the two complementary angles has a measure that is 5 times that of the other. Which equation can be used to find x , the degree measure of the smaller angle?

- a. $5x = 90$
- b. $x + 5x = 90$
- c. $5x = 180$
- d. $x + 5x = 180$

(22) If one angle in a pair of vertical angles measures 42 degrees and the other measures $(2n - 4)$ degrees, which is the value of n ?

- a. 42
- b. 26
- c. 23
- d. 7

(23) Find the solution to the problem below:

$$(5 + 6 - 2 + 6) \div (-3)$$

- a. 5
- b. 0
- c. 1
- d. -5

(24) $(-5) \times 7 \times (-2)$

- a. -70
- b. -14
- c. 14
- d. 70

(25) What is the absolute value of a number?

- a. the distance from zero on a number line
- b. the opposite
- c. the value as an integer
- d. fraction form

Part 2: Short response

Direction: Answer every question. Show all work.

(1) Yesterday, the temperature at noon was 11.4 degree Fahrenheit. By midnight, the temperature had decreased by 15.7 degrees. What was the temperature at midnight?

Show your work:

Answer: _____

(2) A cereal company puts a colored ring in each box of cereal. There are 6 different ring colors. The colors of the rings in each of 50 cereal boxes are shown in the table below.

RING COLORS IN CEREAL BOXES

Color	Number of Rings
Red	7
Blue	15
Green	8
Purple	10
Yellow	5
Orange	5

Based on the data, what is the probability that the next cereal box will contain a blue or a yellow ring?

Show your work:

Answer: _____

(3) A student used 3 steps to create an equivalent expression to the one shown below:

$$\frac{2}{5}(15x - 30y) + 10x$$

Step 1: ?

Step 2: $16x - 12y$

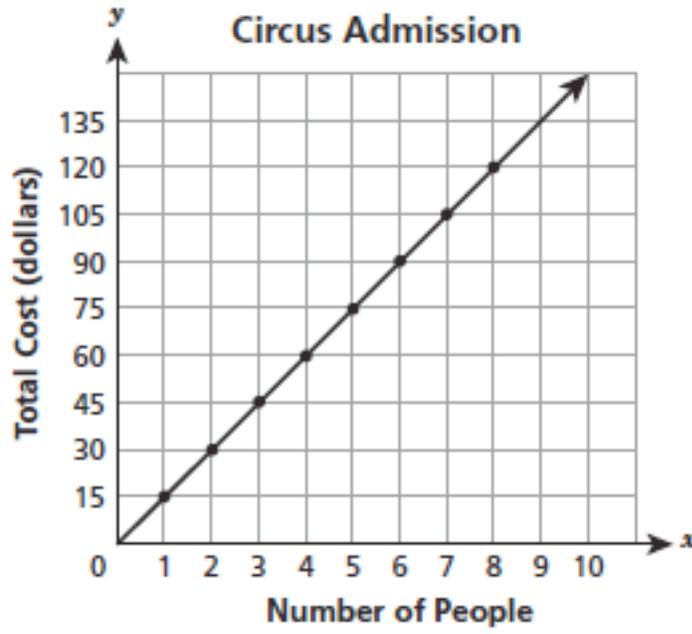
Step 3: $4(4x - 3y)$

Create an expression to fill in for step 1:

Show your work:

Answer: _____

(4) The graph below shows the relationship between the number of people in a group and the total cost of admission tickets for a circus.



What is the cost per person?

Show your work:

Answer: _____

(5) Evaluate:

$$\left(-\frac{7}{10} + 0.15\right) \div (-0.125)$$

Show your work:

Answer: _____

(6) A recipe requires $\frac{1}{3}$ cup of milk for each $\frac{1}{4}$ cup of water. How many cups of water are needed for each cup of milk?

Show your work:

Answer: _____

(7) During a sale, a store offered a 40% discount on a particular camera that was originally priced at \$450. After the sale, the discounted price of the camera was increased by 40%. What was the price of the camera after this increase?

Show your work:

Answer: _____

(8) Determine the value of the expression below:

$$\left(-\frac{1}{4}\right) \times \left(-\frac{3}{7}\right)$$

Show your work:

Answer: _____

(9) Determine the decimal equivalent to $\frac{7}{8}$

Show your work:

Answer: _____

(10) Determine the value of the expression below:

$$\left(-\frac{1}{4} - \frac{1}{2}\right) \div \left(-\frac{4}{7}\right)$$

Show your work:

Answer: _____

(11) What is the radius, in centimeters, of a circle that has a circumference of 16π centimeters?

Show your work:

Answer: _____

(12) The school bus Evie rides is scheduled to arrive at her stop at 8:20 a.m. each day. The table below shows the actual arrival times of the bus for several days that were randomly selected over the past few months.

BUS ARRIVAL TIMES (a.m.)

8:21	8:21	8:19	8:20	8:23
8:22	8:20	8:18	8:20	8:18
8:21	8:20	8:19	8:17	8:25
8:20	8:20	8:18	8:19	8:24

Based on these data, what is the probability that the bus will arrive at Evie's stop before 8:20 a.m. tomorrow?

Show your work:

Answer: _____

(13) Each sales associate at an electronics store has a choice of the two salary options shown below.

❖ \$115 per week plus 9.5% commission on the associate's total sales

❖ \$450 per week with no commission

The average of the total sales amount for each associate last year was \$125,000. Based on this average, what is the difference between the two salary options each year?

(52 weeks = 1 year)

Show your work:

Answer: _____

(14) Travis, Jessica, and Robin are collecting donations for the school band. Travis wants to collect 20% more than Jessica, and Robin wants to collect 35% more than Travis. If the students meet their goals and Travis collects \$43, how much money did they collect in all?

Show your work:

Answer: _____

(15) The mean radius of Earth is 6,371.0 kilometers and the mean radius of Earth's Moon is 1,737.5 kilometers. What is the approximate difference in the mean circumferences, in kilometers, of Earth and Earth's Moon? Round your answer to the nearest tenth of a kilometer.

Show your work:

Answer: _____

(16) A dealer paid \$10,000 for a boat at an auction. At the dealership, a salesperson sold the boat for 30% more than the auction price. The salesperson received a commission of 25% of the difference between the auction price and the dealership price. What was the salesperson's commission?

Show your work:

Answer: _____

(17) Factor the following expression according to the distributive property:

$$32m + 56mp$$

Show your work:

Answer: _____

(18) Ben earns \$9 per hour and \$6 for each delivery he makes. He wants to earn more than \$155 in an 8-hour workday. What is the least number of deliveries he must make to reach his goal?

Show your work:

Answer: _____

(19) Create an expression equivalent to:

$$8c + 6 - 3c - 2$$

Show your work:

Answer: _____

(20) Salid bought 35 feet of window trim at a hardware store. The trim cost \$1.75 per foot, including sales tax. If Salid paid with a \$100.00 bill, how much change should he have received?

Show your work:

Answer: _____

(21) A pile of newspapers in Ms. McGrath's art class was $17\frac{3}{4}$ inches high. Each consecutive week, for the next 5 weeks, the height of the pile of newspapers increased by $8\frac{7}{12}$ inches. What was the height, in inches, of the pile after 3 weeks?

Show your work:

Answer: _____

(22) Harper has \$15.00 to spend at the grocery store. She is going to buy bags of fruit that cost \$4.75 each and one box of crackers that costs \$3.50.

Write and solve an inequality that models this situation and could be used to determine the maximum number of bags of fruit, b , Harper can buy.

Show your work:

Answer: _____

(23) A convenience store sells two brands of orange juice. Brand A contains 8 fluid ounces and costs \$1.28. Brand B contains 12 fluid ounces and costs \$1.68. What is the difference in cost, in dollars, per fluid ounce between the two brands of juice?

Show your work:

Answer: _____

(24) Members of a baseball team raised \$967.50 to go to a tournament. They rented a bus for \$450.00 and budgeted \$28.75 per player for meals. They will spend all the money they raised.

Write and solve an equation that models this situation and could be used to determine the number of players, p , the team could bring to the tournament.

Show your work:

Answer: _____

(25) The table below shows the prices of different numbers of cards on a web site.

COST OF CARDS

Number of Cards	Price (dollars)
20	13
40	26
60	39
100	65

For each order, the web site applies a 7.7% sales tax to the price of the cards, plus a one-time mailing fee of \$5.95. Based on the information in the table, what will be the total cost for an order for 280 cards?

Show your work:

Answer: _____

Part 3:

Select a topic from the following list:

- (1) Adding and subtracting integers
- (2) Multiplying and dividing integers
- (3) Finding the probability of simple and compound events
- (4) Solving an algebraic equation with rational numbers
- (5) Finding unit rates

Create either a presentation on the computer or a poster board that explains the topic that you selected and how you use it in math class.

Be sure to:

- ✓ Identify the topic selected
- ✓ Explain the topic selected in your own words
- ✓ List the steps necessary for your topic
- ✓ Describe a mistake you should be careful to avoid in this topic area
- ✓ Create an example problem from your topic
- ✓ Solve your example problem