AcadeMir Middle School 8th Grade
Summer Mathematics Packets

Students Should print out their packets, work on them during the summer, and be prepared to turn them in on August 22nd, 2016. Please ensure that "you show all your work".

Name: _____ Date: _____

8th Grade Summer Mathematics 2016

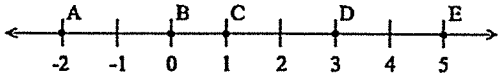
Question 1 of 30
Which pair of ratios form a proportion?

- A. $\frac{8}{9}, \frac{18}{20}$
- B. $\frac{3}{5}, \frac{6}{8}$
- C. $\frac{3}{100}, \frac{6}{49}$
- D. $\frac{14}{20}, \frac{21}{30}$

Question 2 of 30
A carpenter wants to retile a bath using what supplies are on hand. He has 100 tiles. 36 are blue, 24 are yellow and the remainder are white. Which of the following represents the ratio of blue to white tiles?

- A. 3:2
- B. 2:3
- C. 10:9
- D. 9:10

Question 3 of 30



Use the number line above to determine C - A.

- A. -1
- B. 2
- C. 3
- D. 5

Question 4 of 30
Use mental computation to determine: $78\frac{1}{8} - 19\frac{1}{8}$

- A. $51\frac{1}{8}$
- B. 59
- C. 69
- D. $71\frac{1}{8}$

Question 5 of 30
Solve for X:

X = -1/8 - (-4/8).

- A. X = -5/8
- B. X = -3/8
- C. X = 1/8
- D. X = 3/8

Question 6 of 30
Solve for X:

$X = -\frac{1}{8} - (-\frac{4}{8})$.

- A. $X = -\frac{5}{8}$
- B. $X = -\frac{3}{8}$
- C. $X = \frac{1}{8}$
- D. $X = \frac{3}{8}$

Question 7 of 30
What is $\frac{9}{16}$ expressed in decimal form?

- A. 0.525
- B. 0.5625
- C. 0.625
- D. 0.916

Question 8 of 30
What is the sum of the interior angles of a decagon?

- A. 1,440 degrees
- B. 1,620 degrees
- C. 1,800 degrees
- D. 2,160 degrees

Question 9 of 30
Which of the following lengths CAN be the sides of a triangle?

- A. 1, 2, 3
- B. 2, 3, 4
- C. 1, 1, 3
- D. 2, 4, 10

Question 10 of 30
Identify the square pyramid from the following given information.

- A. faces are 2 squares and 4 rectangles
- B. faces are triangles and base is square
- C. faces are squares and base is triangle
- D. faces are triangles and base is circle

Question 11 of 30
Determine the radius of a circle if its circumference is 236.29 mm.

- A. $r \approx 7.90$ mm
- B. $r \approx 18.80$ mm
- C. $r \approx 28.21$ mm
- D. $r \approx 37.61$ mm

Question 12 of 30
Determine the diameter of the circle if the circumference is 126 cm.

- A. $d \approx 20.1$ cm
- B. $d \approx 30.1$ cm
- C. $d \approx 40.1$ cm
- D. $d \approx 50.1$ cm

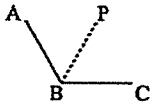
Question 13 of 30
By using the formula $A = \pi r^2$, the area of a circle is 12.56 cm^2. What would be circumference of the same circle using the formula $C = \pi d$? Use 3.14 for π.

- A. 12.56 cm
- B. 6.28 cm
- C. 3.14 cm^2
- D. 12.56 cm^2

Question 14 of 30
A circle is placed inside a square. The circle has a radius of 20 feet. The square's sides each measure 40 feet. How much area inside the square is not covered by the circle? (use 3.14 for Pi)

- A. 1200 square feet
- B. 1600 square feet
- C. 1256 square feet
- D. 344 square feet

Question 15 of 30

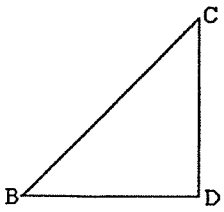


The bisector of $\angle ABC$ is $\overrightarrow{BP}$.

If the measure of $\angle ABP = 50$, what is the measure of $\angle ABC$?

- A. 130°
- B. 100°
- C. 50°
- D. 25°

Question 16 of 30



Triangle BCD has one angle that measures 135° on the outside. On the inside of the triangle, angle BCD measures 45°. How many degrees does angle CDB measure on the inside of triangle?

- A. 60°
- B. 79°
- C. 88°
- D. 90°

Question 17 of 30

Jerry has taken a sample of the favorite colors of the students in his class. 10 students picked red, 5 said blue, and 5 said green.

Based on Jerry's sample, how many students would you predict said blue was their favorite color out of a similar population of 200 students?

- A. 20
- B. 50
- C. 40
- D. 60

Question 18 of 30

Bill has earned $45,000 for the last two years. Prior to that, Bill earned $42,000, $40,000, and $38,000 in the years before. What is Bill's average income for the last five years?

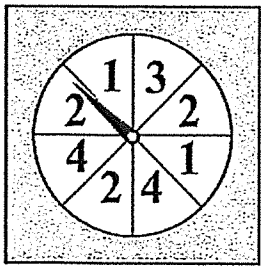
- A. $42,000
- B. $45,000
- C. $40,000
- D. $38,000

Question 19 of 30

On the first night of a movie showing, attendance was 300. On nights two and three, attendance was 200 and 250 respectively. What was the average attendance for the first three nights?

- A. 200
- B. 250
- C. 300
- D. 275

Question 20 of 30
Look at the spinner.



What can you predict about using the spinner?

The spinner will land on _____ more often.

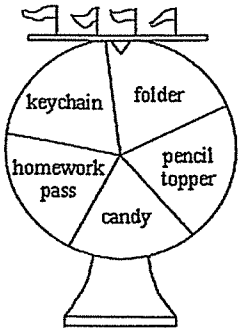
- A. 1
- B. 2
- C. 3
- D. 4

Question 21 of 30
Lauren and John are deciding which game to play. They decide to toss a number cube to help them decide who will select the game. The first one to roll a 2 will get to select the game they will play together. What is the probability of rolling a 2?

- A. $\frac{1}{6}$
- B. $\frac{2}{6}$
- C. $\frac{1}{2}$
- D. $\frac{6}{1}$

Question 22 of 30

At the school fair, Kami is in charge of a booth where students can spin a wheel and win a prize. The wheel is divided into 5 sections. When a student spins the wheel, they win a different prize depending on which section the wheel stops at.



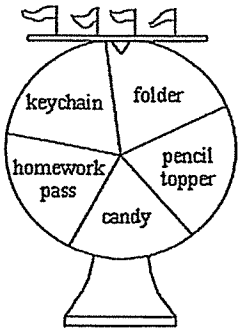
At the beginning of the school fair, Kami had 20 of each kind of the 5 prizes, and she expected these to be given out equally to 100 students. Halfway through the fair, Kami checks her supplies and notices that she has 11 keychains, 9 folders, 16 pencil toppers, 10 candy packs, and only 4 homework passes left.

What can she conclude about the experimental probabilities of landing on the different prizes?

- ○ A. The theoretical probability of winning the candy is higher than the experimental probability of winning the candy.
- ○ B. The experimental probability of winning the candy is higher than the theoretical probability of winning the candy.
- ○ C. The experimental probability of winning the pencil topper is higher than the theoretical probability of winning the pencil topper.
- ○ D. The experimental probability of winning the homework pass is higher than the theoretical probability of winning the homework pass.

Question 23 of 30

At the school fair, Kami is in charge of a booth where students can spin a wheel and win a prize. The wheel is divided into 5 sections. When a student spins the wheel, they win a different prize depending on which section the wheel stops at.



At the beginning of the school fair, Kami had 20 of each kind of the 5 prizes, and she expected these to be given out equally to 100 students. Halfway through the fair, Kami checks her supplies and notices that she has 11 keychains, 9 folders, 16 pencil toppers, 10 candy packs, and only 4 homework passes left.

Based on Kami's supply of prizes that she has left, what was the experimental probability of winning a pencil topper?

- A. $\frac{4}{50}$
- B. $\frac{1}{5}$
- C. $\frac{16}{50}$
- D. $\frac{16}{20}$

Question 24 of 30

The local weather report states that the probability of rain today is 10% and rain tomorrow is 30%. What is the probability that it will rain on both days?

- A. .03
- B. .10
- C. 10
- D. 30

Question 25 of 30

A student wants to find the probability of spinning a certain letter twice. The student has two spinners. One spinner has the letters A, B, C, and D evenly spaced. The other has A, B, and C evenly spaced. What is the student's probability of spinning the letter B twice?

- A. 1 to 7
- B. 1 to 12
- C. 2 to 7
- D. 2 to 12

Question 26 of 30
Steve needs to pick a golf ball and golf club. He has 6 white golf balls and 2 yellow golf ball. Steve has 3 black-handled golf clubs and 2 yellow-handled golf clubs. What is the probability that he randomly selects a yellow golf ball and a yellow-handled golf club?

- A. .10
- B. .25
- C. .40
- D. .50

Question 27 of 30
A spinner is divided into six congruent sections, labeled 1-6. What is the probability of spinning a 2 and then a 3?

- A. 1/3
- B. 1/6
- C. 1/12
- D. 1/36

Question 28 of 30
Name the property shown.

$(\frac{4}{7} + \frac{6}{9}) + \frac{3}{5} = \frac{4}{7} + (\frac{6}{9} + \frac{3}{5})$

- A. commutative
- B. identity
- C. distributive
- D. associative

Question 29 of 30
$-4(2x + 5) =$ ____ $- 20$

- A. $-6x$
- B. $-28x$
- C. $-8x$
- D. $8x$

Question 30 of 30
Which expression simplifies to $8m + 5z + 4$?

- A. $8(m + 4) + 5z$
- B. $12(m + z) + 4$
- C. $12z + 8(m + \frac{1}{2}) - 7z$
- D. $8 + m + 5 + z + 4$