7th Grade Exam

Scoring Format: 3 points per correct response
-1 each wrong response
0 for blank answers

Directions:
For each problem there are 5 possible answers listed. You are to work the problems, determine the correct answer, and indicate your choice on the separate answer sheet provided.

Please use only capital letters on the answer sheet (A, B, C, D, E) and print neatly. This will enable us to correctly grade your paper. If there is any question as to what letter an answer is, it will be marked wrong.

If you change your mind about your answer, be sure to erase completely. Avoid wild guessing, as wrong answers count against you. Do not mark more than one answer for any problem. Make no stray marks of any kind on your answer sheet. Additional room for you to work out problems will be provided on blank scrap paper.

When told to do so, open your test booklet and begin. When you have finished one page, go on to the next. There are 43 questions in all. The working time for the entire test is 60 minutes, so you should work quickly.
1. A coach spent $201 on baseball bats and gloves. Let $b$ represent the number of bats and $g$ represent the number of gloves. Which expression represents the number of items she bought?

A. $b + g$
B. $b \times g$
C. $2b + 3g$
D. $3b + 2g$
E. $2g \times b$

2. A recipe for party mix calls for 4 ¾ cups of cereal. The amount of peanuts needed is $1\frac{2}{3}$ cups less than the amount of cereal needed. How many cups of peanuts and cereal combined are needed?

A. $3\frac{1}{12}$ cups
B. $6\frac{1}{2}$ cups
C. $7\frac{5}{6}$ cups
D. $8\frac{1}{2}$ cups
E. $5\frac{5}{7}$ cups

3. Brett has $\frac{5}{6}$ of his weekly allowance left to spend. He has budgeted $\frac{1}{8}$ of his weekly allowance to save for a new video game. What portion of his weekly allowance will he have left after putting the savings away?

A. $\frac{4}{7}$
B. $\frac{3}{8}$
C. $\frac{7}{12}$
D. $\frac{17}{24}$
E. $\frac{2}{3}$
4. Which of the following fractions is closest to 0 on a number line?
   A. $-\frac{3}{4}$
   B. $-\frac{2}{3}$
   C. $\frac{7}{12}$
   D. $\frac{5}{8}$
   E. $\frac{1}{3}$

5. Josh is choosing from two prize bags that each contain 5 packs of baseball cards, 11 packages of putty, and 9 hats. What is the probability that Josh randomly picks a hat from the first bag and a pack of baseball cards from the second bag?
   A. $\frac{9}{25}$
   B. $\frac{14}{25}$
   C. $\frac{9}{25}$
   D. $\frac{9}{125}$
   E. $\frac{1}{5}$

6. Douglas paid $21 for a pair of jeans at the mall. They were on sale for 20% off. What was the original price before the discount?
   A. $32.50$
   B. $29.75$
   C. $23.00$
   D. $26.25$
   E. $105.00$
7. Sierra has 11.5 yards of fabric. She will use 20% of the fabric to make a flag. How many yards of fabric will she use?

A. 8.6 yd  
B. 4.5 yd  
C. 9.2 yd  
D. 6.8 yd  
E. 2.3 yd

8. Line j and line k below are parallel. The measure of angle ABF is 120°. The measure of angle BFC is 61°. Find the measure of angle CFG.

A. 59°  
B. 120°  
C. 61°  
D. 119°  
E. 29°
9. Mary’s garden contains 108 flowers that are lilies, daisies, or sunflowers. There are half as many lilies as there are daisies. There are one third as many daisies as there are sunflowers. How many daisies are in the garden?

A. 9  
B. 27  
C. 45  
D. 24  
E. 16

10. The surface area of a certain cube is 1536 square centimeters. What is the volume of that same cube?

A. 65,536 cm³  
B. 4096 cm²  
C. 36 cm²  
D. 256 cm³  
E. 4096 cm³

11. Sam is making a bowl of crunch and munch for a super bowl party. To make his version of crunch and munch, he puts 4 parts of Cheesy Bits with 3 parts of Peanut Blobs with 5 parts of Popcorn. He has an unlimited supply of Cheesy Bits and Popcorn, but can only get 4 cups of Peanut Blobs. What is the maximum amount of crunch and munch Sam can make?

A. 12 cups  
B. 13 cups  
C. 14 cups  
D. 15 cups  
E. 16 cups

12. Which of the following statements is always true of positive real numbers?

A. The square root of a number is smaller than the number.  
B. The reciprocal of a number is smaller than the number.  
C. The square of a number is larger than the number.  
D. Three fourths of a number is smaller than the number.  
E. All of the statements above are always true.
13. Above are 3 pictures in a sequence of pictures. Picture 1 uses 11 toothpicks. I wish to continue to build the pictures in the sequence using toothpicks. How many toothpicks will be used in Picture 100?

A. 495
B. 501
C. 506
D. 511
E. 522

14. The quantities represented by the variables A and B are directly proportional. When the value of A is increased by 4, the value of B is increased by 5. What is the value of B when the value of A is 15?

A. $3\frac{1}{5}$
B. 12
C. $16\frac{1}{4}$
D. $18\frac{1}{4}$
E. $18\frac{3}{4}$

15. Dominic is making triangles with different lengths of plastic tubing. Which of the following sets of 3 lengths would not form a triangle?

A. 19in, 20in, 40in
B. 3ft, 4ft, 5ft
C. 11.5cm, 13cm, 20cm
D. 5ft, 8ft, 12ft
E. Any 3 lengths of tubing will form a triangle.
16. Zippy and Speedster are in a 20 mile race. When the clock strikes 10 a.m., Zippy is at the 10 mile marker (has run 10 miles) and Speedster is at the 8 mile marker (has run 8 miles). From this point in time on, Zippy runs at a constant speed of 4 miles per hour and Speedster runs at a constant speed of 5 miles per hour. Who crosses the finish line first and at what time?

A. Zippy crosses first at 12:40
B. Speedster crosses first at 12:40
C. Zippy crosses first at 12:24
D. Speedster crosses first at 12:24
E. Zippy crosses first at 12:20

17. A tub fills at the rate of 5 gallons per minute. 4 minutes after the water is turned on, the drain plug is pulled out and the water drains at the rate of 3 gallons a minute. How long will it take for the tub to fully empty?

A. It will not empty.
B. 6 minutes
C. 6 minutes and 40 seconds
D. 2 minutes and 24 seconds
E. 1 minute and 20 seconds

18. Quadrilateral ABCD is a rhombus. The measure of angle ABC is 23°. What is the measure of angle BCD?

A. 23°
B. 67°
C. 157°
D. 315°
E. 147°

19. A car got 33 miles per gallon using gasoline that cost $2.95 per gallon. Approximately what was the cost, in dollars, of the gasoline used in driving the car 350 miles?

A. $10
B. $20
C. $30
D. $40
E. $50
20. A certain jar contains 60 jelly beans — 22 white, 18 green, 11 yellow, 5 red and 4 purple. If a jelly bean is to be chosen at random, what is the probability that the jelly bean will be neither red nor purple?

A. 0.09  
B. 0.15  
C. 0.54  
D. 0.85  
E. 0.91

21. Which of the following numbers is farthest from the number 1 on the number line?

A. -8/31  
B. -81/5  
C. 0  
D. 5  
E. 81/5

**ANNUAL PERCENT CHANGE IN DOLLAR AMOUNT OF SALES AT FIVE RETAIL STORES FROM 2010 TO 2012**

<table>
<thead>
<tr>
<th>Store</th>
<th>Percent Change from 2010 to 2011</th>
<th>Percent Change from 2011 to 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>10</td>
<td>-10</td>
</tr>
<tr>
<td>Q</td>
<td>-20</td>
<td>9</td>
</tr>
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<td>R</td>
<td>5</td>
<td>12</td>
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<tr>
<td>S</td>
<td>-7</td>
<td>-15</td>
</tr>
<tr>
<td>T</td>
<td>17</td>
<td>-8</td>
</tr>
</tbody>
</table>

22. If the dollar amount of sales at Store P was $800,000 for 2010, what was the dollar amount of sales at that store for 2012?

A. $727,200  
B. $792,000  
C. $800,000  
D. $880,000  
E. $968,000
23. If 25 students in one class had an average of 93% and 20 students from another class had an average of 98%, approximately what is the average in percent of all 45 students?

A. 94
B. 97
C. 95.5
D. 95.2
E. 93

24. A right rectangular prism has a length of \(1 \frac{3}{4}\) inches, a width of 2 inches, and a height of \(3 \frac{1}{4}\) inches. How many cubes with a side length of \(\frac{1}{4}\) of an inch would fit in the prism?

A. 7
B. \(11\frac{3}{8}\)
C. 728
D. 846
E. 56

25. What is the area of a circle that is inscribed in a square whose area is 81 square inches?

A. \(81\pi\) square inches
B. \(18\pi\) square inches
C. \(9\pi\) square inches
D. \(20.25\pi\) square inches
E. \(40.5\pi\) square inches

26. Being a conscientious driver, Suzy stayed at or below the speed limit while traveling down the interstate. Overall, she went an average rate of 65 mph and it took her 10 hours to complete her journey. If she traveled for 6 of her 10 hours at 70 mph, what constant speed did she go for the remaining 4 hours to obtain the overall 65 mph average?

A. 65mph
B. 60 mph
C. 57.5 mph
D. 59.5 mph
E. 62.5 mph
27. Find the area of the graph above enclosed by quadrilateral ABCD.

A. 36 $u^2$
B. 30 $u^2$
C. 42 $u^2$
D. 72 $u^2$
E. 84 $u^2$

28. If account codes for a certain company are assigned as follows: two letters and then three one digit numbers, how many different account codes can be made? Assume that letters and digits cannot be repeated.

A. 1,757,600
B. 676,000
C. 260
D. 468,000
E. 18,720
29. If Maggie randomly chooses a point in the square below, what is the probability that the point she chooses will not be in the circle?

![Diagram of a square with a circle inside]

A. \( \frac{1}{4} \)
B. \( \frac{2-\pi}{4} \)
C. \( \frac{4-\pi}{4} \)
D. \( \frac{\pi}{3} \)
E. There is not enough information to tell

30. Which of the following is closest to the volume of a textbook?

A. 2730 cubic centimeters
B. 2 cubic feet
C. 12 cubic decimeters
D. 500 cubic millimeters
E. .5 cubic meters

31. What is the surface area of the square-based pyramid below? Assume that all triangular faces are congruent.

![Diagram of a square-based pyramid]

A. 139 cubic cm
B. 324 square cm
C. 36 square cm
D. 180 square cm
E. 432 cubic cm
32. Li has a 4ft x 3ft bulletin board that he wishes to cover with 4in x 6in notecards. How many notecards will he need?

A. 84
B. 24
C. 12
D. 1/2
E. 72

33. James has 10 pounds of bird seed. He pours it into containers which hold 3/4 of a pound of bird seed. How many pounds of bird seed will he have left over?

A. 3/4 pound
B. 2/3 pound
C. 1/4 pound
D. 1/2 pound
E. 3/8 pound

34. Tiffany starts with a $100 gift from her grandparents and for an indefinite period of time saves $8.25 per month from her allowance. Mitchell starts with a $80 gift from his grandparents and saves $9.75 per month from his allowance. How many months will it take for Mitchell to have more money than Tiffany?

A. 12 months
B. 13 months
C. 14 months
D. 15 months
E. Mitchell will never have as much money as Tiffany.

35. Mrs. Random gives tests randomly. The odds of her giving a test to not giving a test on any given day in her first period class are 1 to 4. During her 30 year teaching career she has taught 5,400 first period classes. Approximately how many tests has she given in first period?

A. 1080  B. 1350  C. 1800  D. 4320  E. 4720
36. Farmer Johnson has a farm with only ducks and pigs. There are 96 animals and those animals have a total of 302 legs (assuming that each animal have all its limbs). How many ducks are on his farm?

A. 220  
B. 82  
C. 41  
D. 55  
E. 62

37. Find the distance between point G and point H on the coordinate plane below.

A. 37 units  
B. 12 units  
C. $\sqrt{12}$ units  
D. 74 units  
E. $\sqrt{74}$ units

38. Lines j and k are parallel below. Find the measure of angle ACB given that the measure of angle ABC is $41^\circ$ and the measure of angle DCA is $56^\circ$.

A. $41^\circ$  
B. $97^\circ$  
C. $83^\circ$  
D. $79^\circ$  
E. There is not enough information to tell.
39. Ms. Agusto bought 3 hotdogs and 4 sodas for $11. Her friend, Mr. Gupton bought 3 sodas and 5 hot dogs from the same stand for $13.75. How much money would you need if you wanted to buy 1 hotdog and 1 soda from this stand?

A. $3.50  
B. $4  
C. $2.75  
D. $1.50  
E. $3.25

40. Each year the money in a savings account is 3% more than it was the previous year. The amount in Lillie’s account is 1,256.89. What was the balance of her account a year ago?

A. $1220.28  
B. $1294.60  
C. $41,896.33  
D. $1234.63  
E. $1253.89

Three Final Short Answer questions:

41. At how many minutes after noon do the hour hand and the minute hand of an analog clock first meet again? Express your answer to the nearest whole number.

42. The denominator of a positive common fraction is 3 more than its numerator. If 5/28 is added to this fraction, the result is the same as the positive difference between the reciprocal of the original fraction and 1. What is this common fraction?

43. A man who initially weighed 220 pounds completed a diet-and-exercise program. After the 12-week program, his body fat percentage had dropped from 30% to 20%, and his weight had dropped to 200 pounds. If every part of his body that is not fat or muscle has a constant weight of 120 pounds, how many pounds of muscle did he gain during the program?