

7<sup>th</sup> Grade Test 2014

1. The number of whooping cranes wintering in Texas reached an all-time high in 2004 at 213. The lowest number ever recorded was 15 whooping cranes in 1941. What is the percent increase of whooping cranes wintering in Texas from 1941 to 2004?
  - A. 7%
  - B. 91%
  - C. 198%
  - D. 1320%
  - E. 13%
  
2. A recipe for Uncle Frank's homemade hush puppies calls for  $\frac{1}{8}$  teaspoon of cayenne pepper. The recipe calls for 6 times as much salt as it does cayenne pepper. How many teaspoons of cayenne pepper and salt combined are needed?
  - A.  $\frac{6}{8}$
  - B.  $\frac{3}{4}$
  - C.  $\frac{7}{8}$
  - D. 1
  - E.  $\frac{1}{8}$
  
3. Jason saves 30% of his monthly paycheck for college. He earned \$250 last month. If he makes the same amount each month, approximately how long will it take him to save at least \$500.
  - A. 1 year
  - B. 6 months
  - C. 3 months
  - D. 2 months
  - E. 7 months
  
4. A sandwich shop offers 3 choices of breads: white, rye, or garlic; 2 choices of cheese: American or Swiss; and 4 choices of meats: beef, turkey, ham, or pork. How many possible choices are there if only 1 bread, 1 cheese, and 1 meat is used for each sandwich?
  - A. 10
  - B. 24
  - C. 12
  - D. 18
  - E. 8

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5. Josie and Luke have 3 sunflowers and 4 bluebonnets. Josie selects a flower at random. Then Luke chooses a flower at random from the remaining flowers. What is the probability that Josie picks a sunflower and Luke chooses a bluebonnet?
- A.  $\frac{2}{7}$
  - B.  $\frac{12}{49}$
  - C. 1
  - D.  $\frac{23}{21}$
  - E. 2
6. Sally read 25 pages of her book each night. After 4 days, she had  $\frac{1}{5}$  of the book left. How many pages are in the book?
- A. 150
  - B. 125
  - C. 100
  - D. 175
  - E. 500
7. John went to the stores to buy Christmas presents for his kids. He spent  $\frac{2}{3}$  of his money at Old Navy. He then spent  $\frac{1}{3}$  of the remaining money at a Hobby Lobby. At the end of the day, he had \$8 left. How much money did he have before he went shopping?
- A. \$30
  - B. \$32
  - C. \$36
  - D. \$46
  - E. \$40
8. The steeple on a building is a solid square pyramid with a base area of 12 square feet and a height of 15 feet. How many cubic feet of concrete was used to make the steeple?
- A. 27 cubic feet
  - B. 120 cubic feet
  - C. 60 cubic feet
  - D. 3 cubic feet
  - E. 180 cubic feet
9. Rachel has 210.5 feet of fencing. She is going to use 45% of it to fence in her backyard for her dog. About how many feet of fencing will she have left? Round to the nearest hundredth.
- A. 94.73 feet
  - B. 90.73 feet
  - C. 112.74 feet
  - D. 115.78 feet
  - E. 120.75 feet

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10. Triangle Park has a trail that follows the path of a right triangle. The shortest leg of the trail is 2.1 miles, and the medium leg is 3.0 miles. What is the distance of the third side of the trail to the nearest tenth of a mile?
- A. 5.1 miles
  - B. 13.4 miles
  - C. 2.1 miles
  - D. 3.7 miles
  - E. 4.6 miles

11. John has a cube of molding clay with a volume of 1 cubic centimeter. He cuts the cube in half and remolds each piece into a smaller cube. How long is the side of each smaller cube? (Round your answer to the nearest tenth of a centimeter).
- A. 0.5 centimeters
  - B. 0.8 centimeters
  - C. 50 centimeters
  - D. 79.4 centimeters
  - E. 100 centimeters

12. To convert temperature from Fahrenheit to Kelvin, the formula is

$$F = (K - 273.15) * 1.8 + 32$$

If water boils at 212° Fahrenheit, at what temperature does it boil in Kelvin?

- A. -78.07° Kelvin
  - B. -247.67° Kelvin
  - C. 395.75° Kelvin
  - D. 166.05° Kelvin
  - E. 373.15° Kelvin
13. Marsha has a sphere which grows over time. If the radius doubles, by what factor does the volume increase?
- A. The volume stays the same.
  - B. The volume increases by a factor of 2.
  - C. The volume increases by a factor of 4.
  - D. The volume increases by a factor of 8.
  - E. Needs more information.
14. Which of the following is a false statement?
- A. All equilateral triangles are similar to each other.
  - B. All isosceles triangles with one angle equal to 89° are similar to each other.
  - C. All isosceles triangles with one angle equal to 90° are similar to each other.
  - D. All triangles with the same side lengths are similar to each other.
  - E. All triangles with the same angles are similar to each other.

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15. Brian can work 8 math problems in 13.5 minutes. At this rate, which proportion can be used to find  $p$ , the number of math problems Brian can work in 20 minutes?

A.  $\frac{8}{13.5} = \frac{p}{20}$

B.  $\frac{8}{13.5} = \frac{20}{p}$

C.  $\frac{8}{p} = \frac{20}{13.5}$

D.  $\frac{8}{13.5} = \frac{p}{33.5}$

E.  $\frac{p}{8} = \frac{33.5}{13.5}$

16. Allie's Clothing Store is having a clearance sale on coats. Each coat is marked down 60% off of the original price. This weekend, all the coats are an extra 25% off the sale price. If a coat originally cost \$130, how much will the coat cost this weekend (before tax)?

A. \$19.50

B. \$13.00

C. \$58.50

D. \$32.50

E. \$39.00

17. Which polygon has 1.5 times as many sides as a hexagon?

A. Heptagon

B. Octagon

C. Pentagon

D. Nonagon

E. Decagon

18. Benjamin's Pizzeria sold 702 pizzas this week. This is a 35% increase over the average of the last ten weeks' sales. How many pizzas did Benjamin's Pizzeria average selling over the last ten weeks?

A. 456.3

B. 1080.0

C. 245.7

D. 520.0

E. 947.7

19. Assume that the likelihood of a girl being born is the same as that of a boy being born. What is the probability of there being two boys and two girls in a family of four children?

A. 0.250

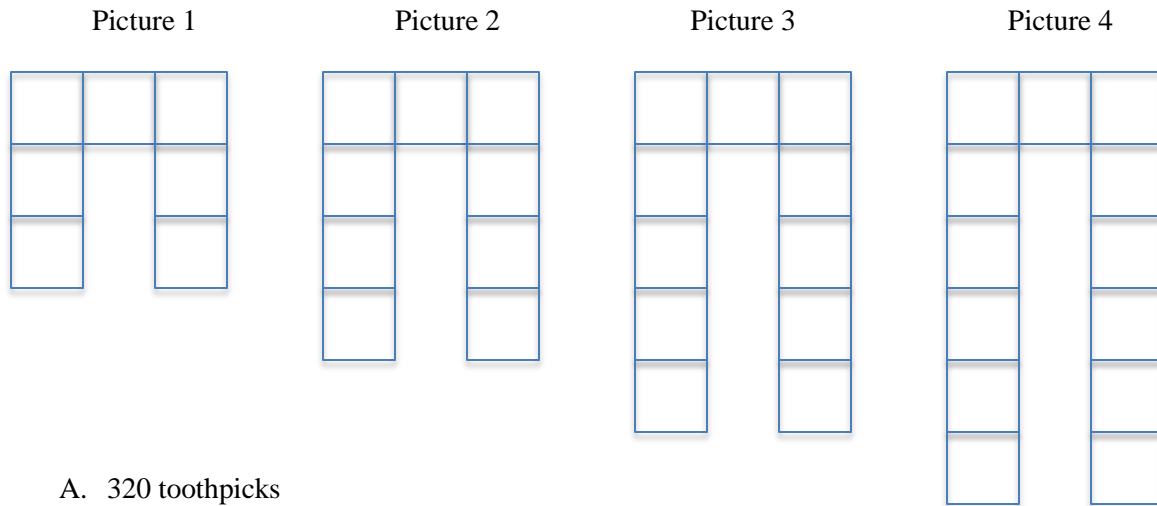
B. 0.333

C. 0.375

D. 0.420

E. 0.450

20. In the first picture below there are 22 toothpicks. How many toothpicks will there be in the 150<sup>th</sup> picture?



- A. 320 toothpicks
- B. 916 toothpicks
- C. 922 toothpicks
- D. 926 toothpicks
- E. 1,214 toothpicks

21. Each of the following collections consists of line segments of the lengths indicated. Which collection(s) contain lengths that may be used to construct exactly one triangle?

- A. 3cm, 4cm, 5cm
- B. 8cm, 11cm, 10cm
- C. 2cm, 8cm, 11cm
- D. A, B, and C
- E. A and B only

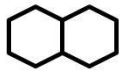
22. The numbers  $a, b, c, d, e,$  and  $f$  are integers, and none of  $b, d,$  or  $f$  is zero. If  $\frac{a}{b} - \frac{c}{d} = \frac{e}{f}$ , then which of the following is/are true?

- A.  $\frac{ad-bc}{bd} = \frac{e}{f}$
- B.  $\frac{e}{f} + \frac{c}{d} = \frac{a}{b}$
- C.  $\left| \frac{e}{f} \right|$  is the distance from  $\frac{a}{b}$  to  $\frac{c}{d}$  on the number line
- D. A, B, and C
- E. A and B only

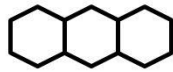
23. The diagrams show figures composed of a hexagon or hexagons of side length 1. Which of the following formulas gives the perimeter  $P$  of such a figure composed of  $n$  hexagons?



$n = 1$



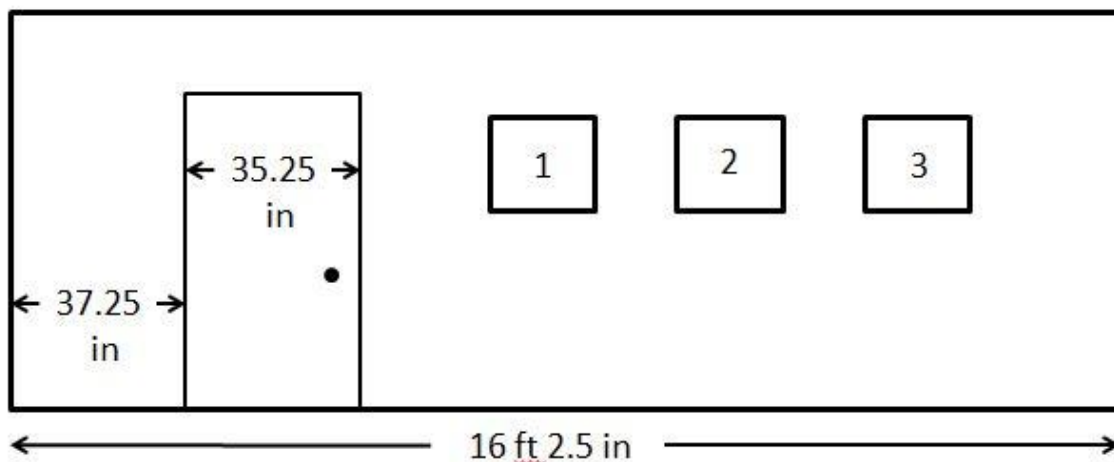
$n = 2$



$n = 3$

- A.  $P = 6n$   
 B.  $P = 6n - 2(n - 1)$   
 C.  $P = 2(2n + 1)$   
 D. Both A and C  
 E. Both B and C
24. Ayesha has three picture frames that are each  $13\frac{3}{4}$  inches wide. She wishes to hang these to the right of a door on a wall so that the distances between each frame, the distance from the right edge of the door to left edge of the first frame, and the distance from the right edge of the last frame to the right end of the wall are all equal. See the diagram. The wall is  $16\text{ feet } 2\frac{1}{2}$  inches long. The left edge of the door is  $37\frac{1}{4}$  inches from the left end of the wall, and the door is  $35\frac{1}{4}$  inches wide. Assuming that a nail will go in the wall at the horizontal center of each frame, how far from the door should Ayesha drive the leftmost nail, assuming she only uses 1 nail for each frame?

Not to Scale

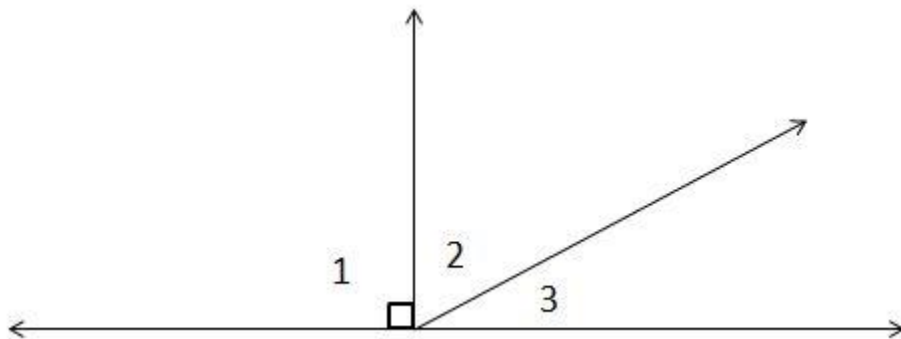


- A.  $27\frac{1}{16}$  in  
 B.  $20\frac{3}{16}$  in  
 C.  $30\frac{1}{2}$  in  
 D.  $38\frac{5}{16}$  in  
 E.  $194\frac{1}{2}$  in

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25. My son is six years old. My son's age added to twice my age gives ninety years. How old am I?
- A. 78 years
  - B. 42 years
  - C. 84 years
  - D. 39 years
  - E. There is not enough information given.
26. A bicycle tire has a diameter of 20 inches. If the tire goes through 8 complete revolutions as the bicycle moves, then how far, to the nearest inch, does the bicycle travel?
- A. 41 feet 9 inches
  - B. 20 feet 9 inches
  - C. 41 feet 11 inches
  - D. 209 feet 3 inches
  - E. 2512 feet
27. Sunnyview Middle School is a typical school in Tennessee. Which of the following is a reasonable value for the probability that a randomly picked school day will be cancelled for weather at Sunnyview next year?
- A. 1.25
  - B. 0.01
  - C. 0.75
  - D. 1
  - E. 0.5
28. A fair coin is flipped three times. What is the probability that the outcome of this experiment includes at least two heads?
- A. 1.25
  - B.  $\frac{1}{8}$
  - C.  $\frac{3}{8}$
  - D.  $\frac{1}{2}$
  - E.  $\frac{7}{8}$

29. As the diagram shows, angle 1 is a right angle. If the measure of angle 2 is 58 degrees, then what is the measure of angle 3? The diagram is not to scale.



- A. 58 degrees  
B. 122 degrees  
C. 42 degrees  
D. 17 degrees  
E. 32 degrees
30. A fruit punch being planned for sale in supermarkets is 60% water and 40% fruit juice. Before it goes to mass production, the producers arrange for a large number of individuals to taste test the product. A majority of the taste testers feel that the product is too fruity and needs to have less of a fruit juice taste. How much water should be added to a 10 ounce sample of the original product in order for the result to be 30% fruit juice and 70% water?
- A. 1 ounce  
B.  $1\frac{1}{3}$  ounces  
C.  $2\frac{1}{3}$  ounces  
D.  $3\frac{1}{3}$  ounces  
E. 4 ounces