2015 6th Grade Test

1. A decorator company has $11\frac{3}{5}$ boxes of tiles to decorate a kitchen. The tiles will be divided equally among three workers. How many boxes of tiles will each worker receive?

   A) $3\frac{2}{3}$

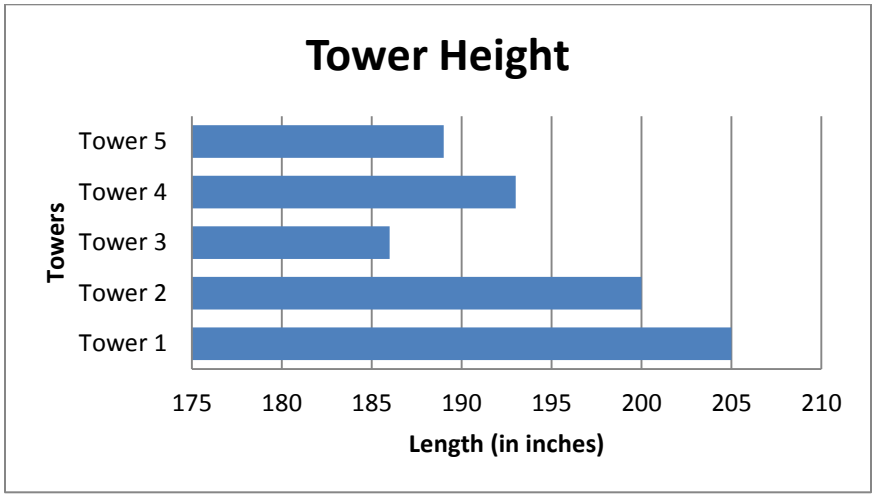
   B) $2\frac{3}{4}$

   C) $13\frac{3}{4}$

   D) $3\frac{13}{15}$

   E) $8\frac{2}{5}$

2. The heights of 5 towers are displayed on the graph.



   Which feature of the graph may be misleading?

   A) The bars are not in order from longest to shortest.
   B) The bars are horizontal instead of vertical.
   C) The scale does not start at zero.
   D) The bars should be in order from shortest to longest.
   E) The values on the horizontal axis increase by 5.

3. A pizza parlor prepared 39 pizzas to deliver. The first person delivered 7 pizzas and placed the rest of the pizza boxes on 4 shelves equally. Which equation could be used to find n, the total number of pizza boxes she put onto each shelf?

   A) $n = (39 + 7) \div 3$
   B) $n = 39 - 7 \div 4$
   C) $n = 39 + (7 \times 4)$
   D) $n = (39 - 7) \div 4$
   E) $n = -39 - (7 \times 4)$

4. The backyard of Mrs. Johnson's home is 1 acre. If a garden is supposed to be built in the middle measuring 2,052 square yards, approximately what percent of the backyard will be built into a garden? (1 acre = 4,840 yd^2)

   A) 24 %
   B) 42 %
   C) 52%
   D) 48 %
   E) 38 %

5. Which expression is equal to $12 (2k + 4) + 3k + 6k$?

   A) $33k + 4$
   B) $23k + 4$
   C) $81k$
   D) $37k$
   E) $33k + 48$

6. The table below shows the number of apples sold at a farmers market.

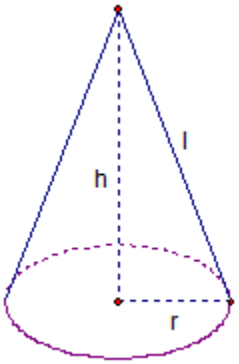
Apples Sold

Type	Number of Apples	Price
Green	g	$2
Yellow	50	$3

$520 worth of apples were sold. Which equation can be used to find the number of green apples, g, sold?

   A) $2g = 520 - 3(50)$
   B) $520 = 2g - 3(50)$
   C) $50g = 520 - 2(50)$
   D) $g = 520 - 3(50)$
   E) $2g = 520 + 3(50)$

7. Linda's birthday hat is in the shape of a right cone, as displayed below. The outside hat surface is covered with glitter.



r = 3 in

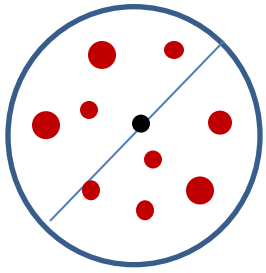
l = 5.5 in

SA = $\pi rl + \pi r^2$

What is the approximate total surface area of the cone hat that is covered in glitter?

A) 80 in^2
B) 52 in^2
C) 189 in^3
D) 147 in^2
E) 110 in^2

8. The diameter of a pizza is shown below.



d = 8.5in

What is the area and circumference of the given pizza, respectively? Round to the nearest whole number.

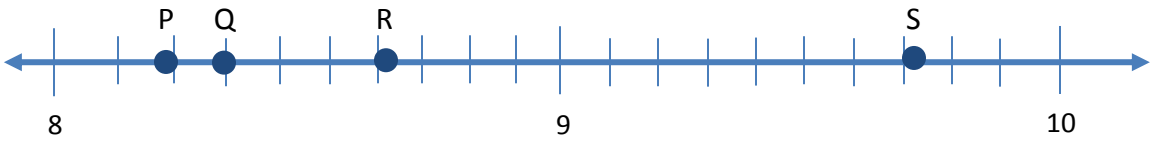
A) 907 in^2, 107 in
B) 227 in^2, 107 in
C) 57 in^2, 27 in
D) 454 in^2, 57 in
E) 27 in^2, 57 in

9. The information below shows how much time Mr. Alfred spends on each classroom activity in minutes (min).
    - Math: 45 min
    - Science: 45 min
    - History: 30 min
    - Reading: 15 min
    - English: 15 min
    - Recess and lunch: 90 min

    Which equation could be used to find the total time, *t*, spent in Mr. Alfred's class, including recess and lunch?

    A) $t = (2 + 45) \times (2 + 15) \times 30 \times 90$
    B) $t = (2 \times 15) \times (2 \times 45) + 20 + 90$
    C) $t = (2 \times 15) + (2 \times 45) + 30 + 90$
    D) $t = (2 + 45) + (2 + 15) + 30 + 90$
    E) $t = (2 + 15) + (2 \times 45) \times 30 + 90$

10. Which point on the number line below is closest to $8\frac{5}{8}$?



    A) Point P
    B) Point Q
    C) Point R
    D) Point S
    E) It is impossible to tell.

11. Five cars travel for 45 minutes on straight flat roads without interruption. Information about their speeds and time at each speed follows.

    Car A travels at 1 km/min for 30 min then travels at 1.2 km/min for 15 min.
    Car B travels at 1 mi/min for 20 min then 0.8 mi/min for 25 min.
    Car C travels at 50 mi/hr for 25 min the 70 mi/hr for 20 min.
    Car D travels at 60 km/hr for 15 min and 80 km/hr for 30 min.
    Car E travels at 60 mi per hour for 45 minutes.

    Which car has the highest average speed for the entire trip?

A) Car A
B) Car B
C) Car C
D) Car D
E) Car E

12. Consider the multiplication problem

a	7	4
×	d	6

where the three digit whole number "a74" is multiplied by the two digit whole number "d6." You are a contestant in a math game show, and the host announces that the values of "a" and "d" are written on a poster board behind a screen. The product of the two numbers is the amount of money that you would win. You are told that the values of "a" and "d" are currently the same. Without looking at the poster board, you are allowed to make one change. You can specify a value of 1,2,3,4,5,6,7,8, or 9 for either of the digits "a" or "d" or change one of the digits already on the board. Indicate which of the following is true.

A) Choosing "a" = 9 and "d" = 9 are equally good strategies.
B) You should change "a" to 9.
C) You should change "d" to 9.
D) It might be better to change "a" to 9 or it might be better to change "d" to 9 depending on what values are there now.
E) Neither "a" nor "d" should be changed to 9.

13. Suppose it takes a programmable robot 1 hour to make one complete trip around the edge of a circle. Suppose the radius of that circle is doubled. If the robot has unlimited battery power and continues at the same speed, how long does it take him to make one complete trip around the edge of the new circle?

A) 4 hours
B) 2 hours
C) 1 hour
D) 6 hours
E) You have to know the original radius to answer this question.

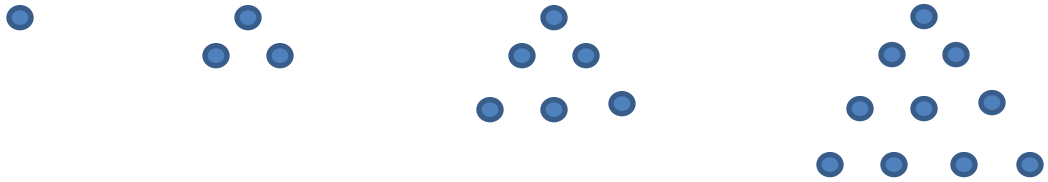
14. Anayah multiples 26 x 25 in the following way:

$26 \times 25 = (13 \times 2) \times (5 \times 5)$
$26 \times 25 = 13 \times (2 \times 5) \times 5$
$26 \times 25 = 13 \times 10 \times 5$
$26 \times 25 = (13 \times 10) \times 5$
$26 \times 25 = ((10 + 3) \times 10) \times 5$
$26 \times 25 = (100 + 30) \times 5$
$26 \times 25 = (100 \times 5) + (30 \times 5)$
$26 \times 25 = 500 + 150$
$26 \times 25 = 650.$

Which property was not used by Anayah?

A) associative property of addition
B) commutative property of multiplication
C) distributive property of multiplication over addition
D) Neither A) nor B) were used.
E) Neither A), B), nor C) were used.

15. As illustrated below: The first triangular number is 1. The second triangular number is 3. The third triangular number is 6. The fourth triangular number is 10.



What is the 100^{th} triangular number?

A) 5,000
B) 5,050
C) 5,100
D) 10,000
E) 10,050

16. Working together, Todd and Veronica assembled fruit baskets for a school fundraising project. In each basket he made, Todd placed two apples and three bananas. Veronica placed three apples and one banana in each of her baskets. Todd filled eight baskets, and Veronica filled eleven baskets. If a represents the number of apples used and b represents the number of bananas used, which of the following expressions represents the total number of apples and bananas in the baskets that Todd and Veronica filled?

A) $11(2a + 3b) + 8(3a + b)$
B) $37a + 38b$
C) $38a + 37\ b$
D) $(11 + 8)(2a + 3b)(3a + b)$
E) $8(2a + 3b) + 11(3a + b)$

17. If the point $(-3,7)$ is reflected across the y-axis in a coordinate plane, then what are the coordinates of the resulting point?

A) $(-3, -7)$
B) $(7, -3)$
C) $(3, -7)$
D) $(3,\ 7)$
E) $(-7, 3)$

18. Celeste is making bags of treats. She has 84 lollipops and 56 miniature candy bars. Each bag needs to have the same number of lollipops, and each bag needs to have the same number of candy bars as the other bags. If Celeste wants to use all of her candy in the bags, what is the largest number of treat bags she can make?

A) 56
B) 28
C) 42
D) 40
E) 1

19. Which of the following expressions is NOT equivalent to the expression $\frac{4}{5} \div \frac{6}{7}$?

A) $\frac{4}{6} \div \frac{5}{7}$

B) $\frac{24}{35}$

C) $\frac{84}{90}$

D) $\frac{4 \div 6}{5 \div 7}$

E) They are all equivalent to the given expression.

20. Students in Ms. Thomas's class and students in Mr. Bunsen's class took an exam on modern poetry. The mean grade in each class was 72. The interquartile range of the grades in Ms. Thomas's class was 25, while the interquartile range of the grades in Mr. Bunsen's class was 12. There are 30 students in each class. Which of the following statements is most reasonable?

A) Ms. Thomas's students' grades were distributed more widely than Mr. Bunsen's students' grades.
B) Mr. Bunsen's students understand modern poetry better than Ms. Thomas's students.
C) Mr. Bunsen's students' grades were distributed more widely than Ms. Thomas's students' grades.
D) The median grade in Ms. Thomas's class was greater than the mean grade in Ms. Thomas' class.
E) None of these statements can possibly be true.

21. Solve for x. $x + \frac{3}{2} = 5$

A) $\frac{13}{2}$

B) $\frac{10}{3}$

C) $\frac{7}{2}$

D) $\frac{15}{2}$

E) 7

22.

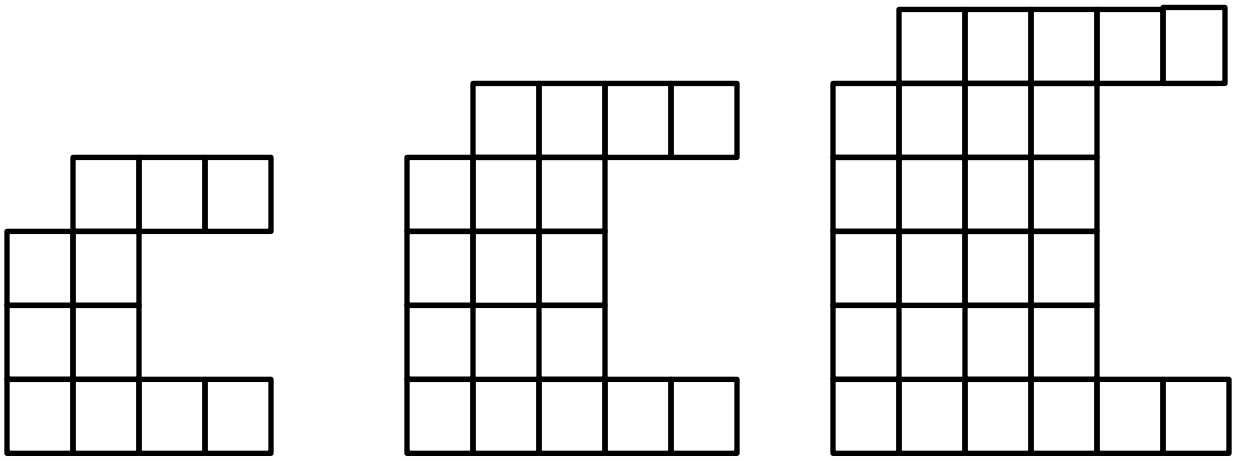


Figure 1

Figure 2

Figure 3

As illustrated above there are 11 tiles in Figure 1. How many tiles are in figure 100?

A) 704
B) 9,406
C) 9,604
D) 10,406
E) 10,604

23. Coach Price will order football uniforms from one of the stores listed below.
    - Store A sells 25 uniforms for a total of $1,062.50.
    - Store B sells 10 uniforms for a total of $450.00
    - Store C sells 2 uniforms for $95.00.
    - Store D sells uniforms for $48.50 per uniform.

    Which store has the lowest price per uniform?

    A) Store A

    B) Store B

    C) Store C

    D) Store D

    E) At least two stores sell them for the same lowest price per uniform.

24. Mr. Smith asked his students whether they prefer to go to a museum or the zoo for a field trip. He found that 45% of the students prefer to go to a museum, 25% prefer to go to the zoo, and the rest have no preference. What is the ratio of students who have no preference to the students who prefer to go to the museum?

    A) 2:3

    B) 1:2

    C) 4:9

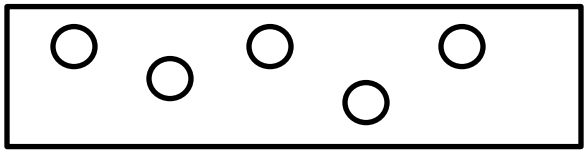
    D) 9:6

    E) 3:6

25. Which is more likely to happen when tossing a fair coin?

    A) getting exactly 4 heads in 10 coin tosses
    B) getting exactly 40 heads in 100 coin tosses
    C) getting exactly 400 heads in 1000 coin tosses
    D) Each outcome is equally likely.
    E) A) and B) are equally likely, and more likely than C).

26. Li bought five different flowers to plant in her flower box below. If any of the flowers could be planted in any of the five pots, how many different arrangements of flowers are possible?



    A) 25
    B) 5
    C) 125
    D) 3,125
    E) 120

27. Which of the following is a false statement?
    A) All squares are rectangles.
    B) Some rhombi are not parallelograms.
    C) Not all parallelograms are rectangles.
    D) All rhombi are quadrilaterals.
    E) All rectangles are parallelograms.

28. Which of the following is the prime factorization of 1,530?
    A) $51 \times 3 \times 5 \times 2$
    B) $153 \times 2 \times 5$
    C) $2 \times 3 \times 5 \times 17$
    D) $17 \times 3^2 \times 5 \times 2$
    E) none of the above

29. A parallelogram is plotted on a coordinate plane. Three of the vertices of the parallelogram are (-5. 0), (2, 3), and (3, 6). Which of the following could be the coordinates of the fourth vertex of the parallelogram?
    A) (-4, 3)
    B) (1, 4)
    C) (10, 9)
    D) none of the above
    E) Choices A) and C) could both be correct.

30. Which of the following items most likely has an area of 0.02 m^2?
    A) the front cover of a novel
    B) the top of a kitchen table
    C) the tip of a pencil eraser
    D) a dining room floor
    E) the surface of a lake