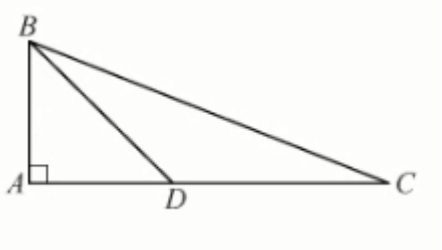
第一套

SECTION 1

1. A certain brand of dishwashing liquid was sold in two different bottle sizes. The small bottle was sold with 2/5 as many ounces of liquid as the large bottle and was sold at a price that was 1/2 the price of the large bottle.
Quantity A: The price per ounce of the liquid in the small bottle
Quantity B: The price per ounce of the liquid in the large bottle

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

2.



AB=12, AC=30, and AD= 2/5(AC).

Quantity A: The measure of angle BDC
Quantity B: 120°

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

3. Set I consists of the integers from 11 through 100, inclusive.

Quantity A: 4 times the number of integers in set T that are multiples of 4
Quantity B: 5times the number of integers in set T that are multiples of 5

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

4. $x^2+6x=7$
Quantity A: $(x+3)^2$
Quantity B: 16

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

5.
Quantity A: The number of different prime factors of 500
Quantity B: The number of different prime factors of 360.

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

6. Quantity A: The area of a triangular region with perimeter 8
Quantity B: 8

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

7. List L consists of 7 numbers. The range of the numbers in list L is 0.

Quantity A: The average (arithmetic mean) of the numbers in list L.
Quantity B: 0

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

8. $s=|t-2|$

Quantity A: $s+2$
Quantity B: $|t|$

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

*9.!*A jar contains exactly 10 dimes and x quarters and no other coins. If a coin is randomly selected from the jar, the probability that a quarter is selected is 0.6. What is the value of x.

A. 5
B. 6
C. 8
D.12
E. 15

10. In the rectangular coordinate system, the point (3,1) is on the circle with center (0,-3). What is the area of the circle?

A. 5π
B. 7π
C. 10π
D. 25π
E. $\pi\sqrt{7}$

11. $(2x+1)^2-(2x-1)^2=$

A. 2
B. $8x$
C. $4x-1$
D. $4x+1$
E. $8x+2$

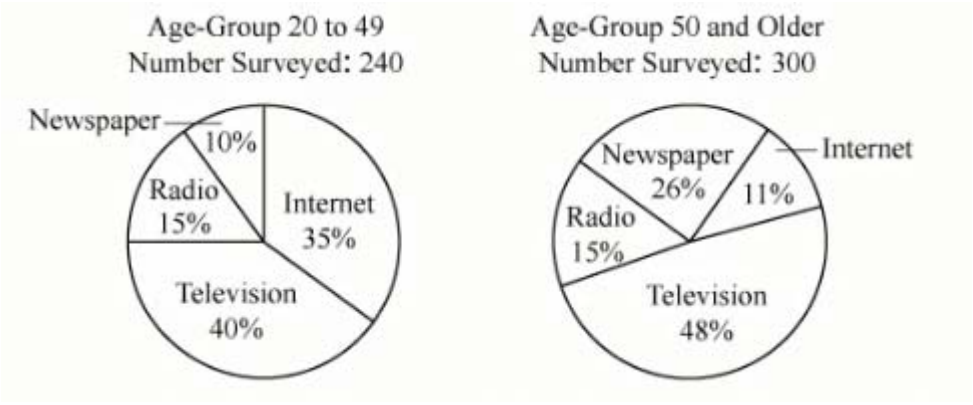
12. Which of the following is an equation of a line that doe NOT contain any points in the xy-plane for which both coordinates are integers?

A. $y=4$
B. $y=\frac{1}{2}x$
C. $y=x+3$
D. $y=x+\frac{1}{2}$
E. $y=\frac{1}{2}x+3$

13. A veterinarian has 70 clients who own cats, dogs, or both. Of these clients, 36 own cats, including 20 clients who own both cats and dogs. Which of the following statements must be true?
Indicate all such statements.

A. There are 54 clients who own dogs.
B. There are 34 clients who own dogs but not cats.
C. There are 16 clients who own cats but not dogs.

14-16 are based on the following data.
Survery* of preferred method to obtain news, by age-group



*Each person surveyed indicated one of the four methods as his or her preferred method to obtain news.

14. What fraction of the people in the age-group 20 to 49 indicated newspaper or the Internet as their preferred method to obtain news?

15. Which of the following is closest to the percent of all the people survey who indicated the Internet as their preferred method to obtain news?
A. 18.8%
B. 21.7%
C.23.0%
D.33.3%
E.46.0%

16. For the age-group 50 and older, the number of people who indicated the Internet as their preferred method to obtain news is approximately what percent less than the number of people who indicated radio?
A. 12%
B. 27%
C. 36%
D. 45%
E. 50%

17. When the positive integer x is divided by 42, the remainder is 19. What is the remainder when x is divided by 7?
A. 0
B. 2
C. 3
D. 4
E. 5

18. If x is 4 more than half of y and if y is 10 more than half of x, what is the value of x?

19. A pianist agreed to perform one concert at a fee 12.5 percent less than her usual fee and a second concert at a fee 20 percent greater than the first fee. The fee for the second concert was what percent greater than her usual fee?
A. 5%
B. 7.5%
C. 15%
D. 16.25%
E. 32.5%

20.

Textbook	Number of Pages
A	510
B	480
C	490
D	520
E	x

The table shows the number of pages in each of 5 textbooks. What is the greatest possible value of x for which the average (arithmetic mean) number of pages of the 5 textbooks is equal to the median number of pages of the 5 textbooks?

SECTION 2

1. For the 500 measurements obtained in experiment *X*, the average (arithmetic mean) value is 280 and the value *k* is at the 75th percentile. For the 500 measurements obtained in experiment *Y*, the average value is 280 and the value *n* is at the 75th percentile.

Quantity A: *k*
Quantity B: *n*

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

2. Quantity A: The greatest possible value of $\frac{2}{x-y}$, where $9 \le x \le 12$ and $-2 \le y \le 8$
Quantity B: 2

A. Quantity A is great r.

e

B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

3. $x - y = 5$
Quantity A: $x^2 - y^2$
Quantity B: 5

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

4. $f(x) = 4x^2 + 28x + 49$ for all x.
Quantity A: The number b such that $f(b)$ is the minimum value of f
Quanti$_t$y B: -3

A. Quantity A is great$_e$r.

B. Quantity B is greater.
C. The two quantities are equal

D. The relationship cannot be determined from the information given.

5. Quantity A: $(27)^{-8}$
Quantity B: $(81)^{-6}$

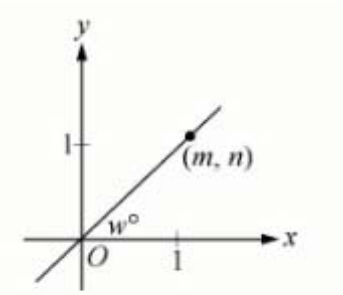
A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

6. m and n are integers.

Quantity A: $\left(\sqrt{10^{2m}}\right)\left(\sqrt{10^{2n}}\right)$
Quantity B: 10^{mn}

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

7.



$w > 45$

Quantity A: $m + n$
Quantity B: $2m$

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal
D. The relationship cannot be determined from the information given.

8. Company *A* has twice as many employees as Company *B,* and the two companies have no employees in common. If 64 percent of the employees of Company A are women and 52 percent of the employees of Company B are women, what percent of all

the employees of the two companies are women?

9. A bookcase has *s* shelves with *n* books on each shelf, where *n* is a multiple of both *s* and *s*-1. If all of the books on the highest shelf were removed and redistributed equally among the other shelves, which of the following represents the number of books that would be on each of the other shelves?

A. $\frac{ns}{s-1}$

B. $\frac{n(s+1)}{s}$

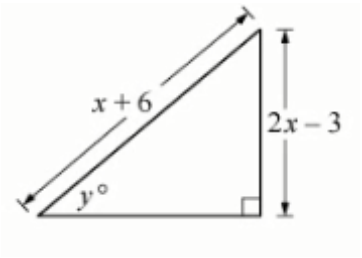
C. $\frac{(n+1)s}{s-1}$

D. $\frac{(n-1)\mathrm{s}}{\mathrm{s}-1}$

E. $\frac{(n+1)(s-1)}{s}$

10. Which of the following pairs of integers have reciprocals whose sum is either less than 1/3 or greater than 1/2?
Indicate all such pairs.
A. 1 and 14
B. 3 and 12
C. 5 and 10
D. 7 and 8

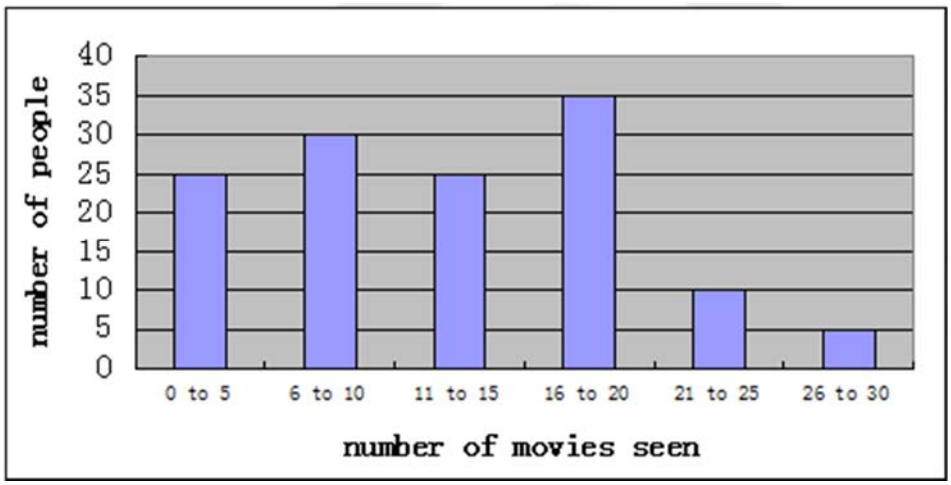
11.

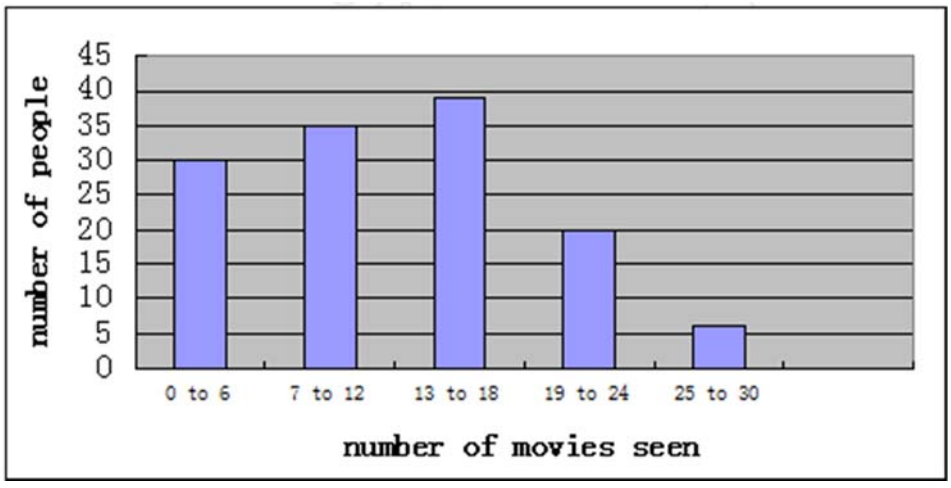


In the triangle, is y =30, then x =

A. 3
B. 4
C. 5
D. 8
E. 9

12.





In a survey, 130 people were asked how many movies they had seen in the preceding year. Their responses varied from 0 to 30 movies. The graphs above show two different summaries of the same

survey results. How many people responded that they had seen 11 or 12 movies?

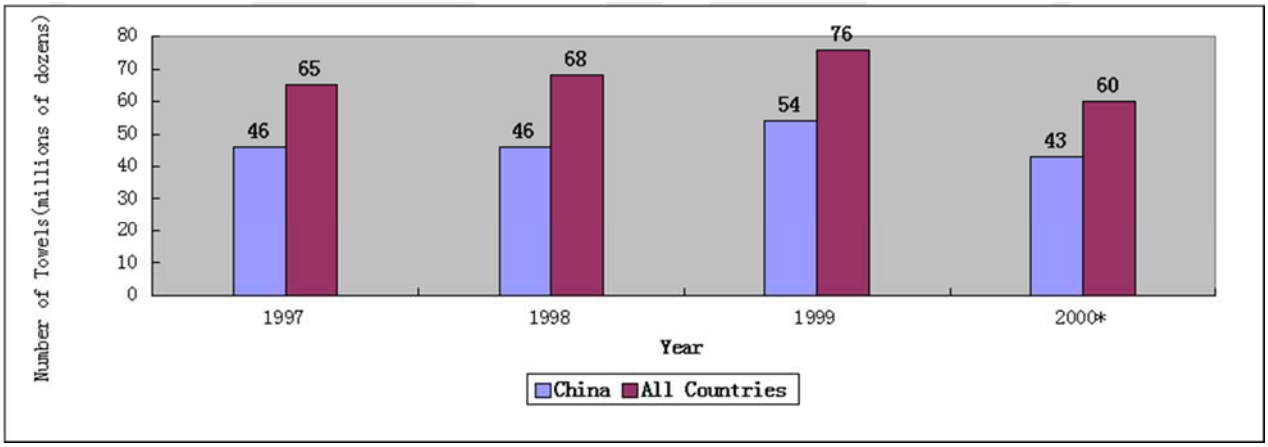
A. 10
B. 12
C. 15
D. 20
E. 23

13. The width and the length of a rectangular piece of plywood are 4 feet and 8 feet, respectively. Along one edge of the plywood, a strip x inches wide and 8 feet long is removed. Then, along an edge perpendicular to the 8-foot edge, a strip x inches wide is removed. For what value of x will the remaining rectangular piece have width and length in the ratio of 2 to 5? (1 foot = 12 inches)

Questions 14-16 are based on the following data.

For each of the years 1997 through 2000*, the graph shows the number of towels imported to Japan from China, and the total number of towels imported to Japan from all countries, including China.

Number of Towels Imported to Japan, 1997-2000*
(in millions of dozens**)



*For the first nine months of 2000
**1 dozen = 12

14. In 1998, how many of the imported towels were not imported from China?

A. 260 million
B. 264 million
C. 268 million
D. 272 million
E. 276 million

15. If the average (arithmetic mean) number of towels imported from China per month was the same for the last 3 months of 2000 as it was for the first 9 months of 2000, approximately how many million dozen towels were imported from China during the 12 months of 2000?

A. 57
B. 63
C. 76
D. 80
E. 86

16. In 1999, the ratio of the number of towels imported from China to the total number of towels imported from countries other than China was closets to which of the following?
A. 7 to 2
B. 3 to 1
C. 5 to 2
D. 2 to 1
E. 3 to 2

17. If x is a positive integer such that the units digit of x^3 is 3, what is the units digit of x^{15}?
A. 1
B. 3
C. 5
D. 7
E. 9

18. $\frac{60!-59!}{58!} =$

A. (59)(58)
B. (60)(59)
C. $(58)^2$
D. $(59)^2$
E. $(60)^2$

19. If a square region with side x and a circular region with radius r have the same area, then x must be how many times as great as r?

A. $\frac{1}{\pi}$

B. $\frac{1}{\sqrt{\pi}}$

C. $\sqrt{\pi}$

D. π

E. π^2

20. The sum of n numbers is greater than 48. If the average (arithmetic mean) of the n numbers is 1.2, what is the least possible value of n?