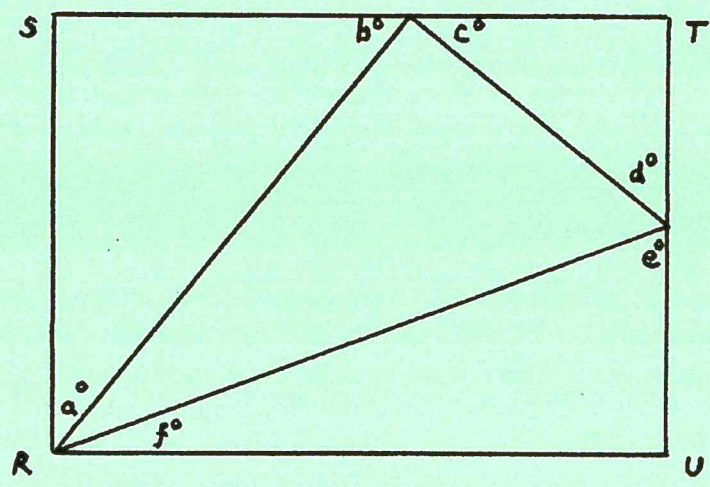


- 8) The point (a, b) is reflected over the y -axis. Call the coordinates of the new point (c, d) . What is the value of $ab + cd$?
- A) -1 B) $-2a$ C) 0 D) 1 E) N.O.T.
- 9) The area of a given rectangle is $x^2 + 2x - 99$. If the width is $x + 11$, the length must be
- A) $x + 9$ B) $x - 9$ C) $x - 13$ D) $x + 13$ E) N.O.T.
- 10) How far apart are the y -intercepts of the line with equation $y = 2x + 3$ and the line that goes through the point $(4, 2)$ and has slope -1 ?
- A) 1 B) 2 C) 3 D) 4 E) N.O.T.
- 11) If $8b - 2 = 22$, then $4b - 1 =$
- A) 2 B) 11 C) 12 D) 44 E) N.O.T.
- 12) $\frac{4^{13} - 4^{12}}{4^{11}} =$
- A) 0 B) 1 C) 4 D) 12 E) N.O.T.

13) In the figure below, if $RSTU$ is a rectangle, what is the value of $a + b + c + d + e + f$ in degrees?



- A) 90 degrees B) 180 degrees C) 270 degrees D) 360 degrees E) N.O.T.

14) If $a = (27)(3^{-2})$ and $x = (6)(3^{-1})$, which of the following is equivalent to $(12)(3^{-x}) \times (15)(2^{-a})$?

- A) $5(-2245)(320)$ B) $\frac{2}{5}$ C) $\frac{5}{2}$ D) $5(2245)(320)$ E) N.O.T.

15) In the xy -plane, rectangle $WXYZ$ has vertices at $(-2, -1)$, $(-2, y)$, $(4, y)$, and $(4, -1)$. If the area of $WXYZ$ is 18, what is the length of its diagonal?

- A) $3\sqrt{2}$ B) $3\sqrt{3}$ C) $3\sqrt{5}$ D) $3\sqrt{6}$ E) N.O.T.

16) All first-year students at State University must take calculus, English composition, or both. If half of the 2,400 first-year students at State University take calculus and half do not, and one-third of those who take calculus also take English composition, how many students take English composition?

- A) 400 B) 800 C) 1200 D) 1600 E) N.O.T.

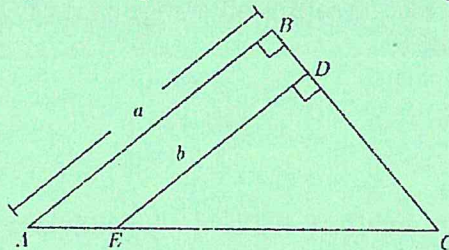
17) If $\frac{13!}{2^x}$ is an integer, which of the following represents all possible values of x ?

- A) $0 \leq x \leq 10$ B) $0 < x < 9$ C) $0 \leq x < 10$ D) $1 \leq x \leq 10$ E) N.O.T.

18) How many three-digit integers can be created using only 5 distinct digits?

- A) 15 B) 20 C) 30 D) 60 E) N.O.T.

19) If $AB = BC$, which of the following is an expression for the area of quadrilateral $ABDE$?



- A) $\frac{a^2}{2} - \frac{b^2}{2}$ B) $\frac{a^2}{2} + \frac{b^2}{2}$ C) $a^2 - b^2$ D) $\frac{a^2}{4} - \frac{ab}{2}$ E) N.O.T.

20) If the average of 6, 8, 10, and x is greater than 6 but less than 12, what is the greatest possible integer value of x ?

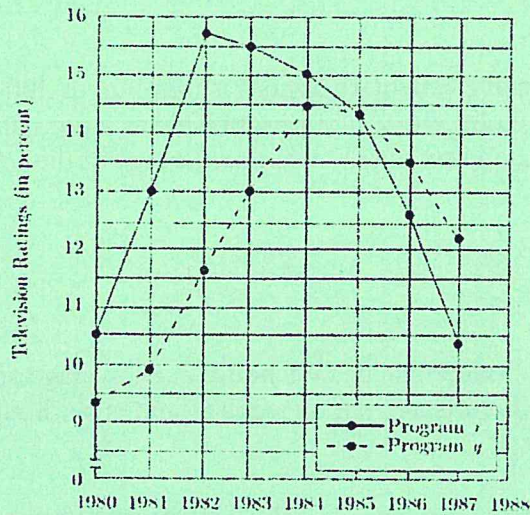
- A) 8 B) 11 C) 23 D) 28 E) N.O.T.

27) If $5x + 4y = 6$ and $4x + 3y = 5$, then what does $x + y$ equal?

- A) 16 B) 9 C) 7 D) 1 E) N.O.T

28) For how many of the years shown in the graph below did ratings for Program y increase over the ratings for Program y in the previous year?

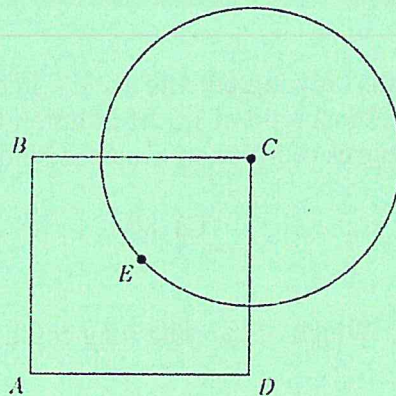
TELEVISION RATINGS* IN THE UNITED STATES
1980-1987



*Ratings equal the percent of television households in the United States that viewed the program.

- A) Two B) Three C) Four D) Five E) N.O.T.

29) Square $ABCD$ and a circle with center C intersect as shown. If point E is the center of $ABCD$ and if the radius of circle C is f , then what is the area of $ABCD$, in terms of f ?



- A) $\frac{\pi f^2}{2}$ B) πf^2 C) f^2 D) $2f^2$ E) N.O.T.

