Question 1

$$
\begin{aligned}
A &= \text{The value of } x \text{ in the equation: } 3x + 4 = 16. \\
B &= \text{The negative value of } x \text{ in the equation: } x^2 = 64 \\
C &= \text{The value of } x \text{ in the equation: } x^2 + 4x + 4 = 0 \\
D &= \text{The value of } x \text{ in the equation: } x^2 - 6x - 10 = -19
\end{aligned}
$$

Find $A + B + C + D$

Question 2

A: How much is left if Kenny orders a pizza of area 100ft^2 and eats half of it?

B: How much does Brady eat if he throws out $\frac{1}{3}$ of a pizza with area 60ft^2 and eats $\frac{3}{4}$ of the rest?

C: How much will Cameron have eaten if he eats 9 pizzas of area 18ft^2?

D: Govind bakes a pizza of area 600ft^2. Phalguna steals $\frac{5}{12}$ of his pizza. Victor comes over and steals $\frac{2}{7}$ of the rest. How much pizza is left for Govind?

Find A+B+C+D

Question 3

A = The 3rd prime number

B = The number of primes from 1 to 25

C = The largest prime from 1 to 100

D = The product of the smallest prime and the smallest composite number

Find $C - A - B - D$

Question 4

All of the students in Mr. Harrington's book club are in at least one of the following classes: History, English, or Math. There are 23 students taking Math, 23 taking History, and 26 taking English. 5 students take Math and History, 9 take History and English, and 10 take Math and English. 3 students take all three classes.

$$
\begin{aligned}
A &= \text{The number of students that take only Math} \\
B &= \text{The number of students that take only one class} \\
C &= \text{The number of students that take only English} \\
D &= \text{The number of students that are in the book club}
\end{aligned}
$$

Find $A + B + C + D$

Question 5

The scores from my six math tests are (87, 90, 75, 100, 80, 90)

A = The mean of the scores, rounded to the nearest integer
B = The range of the scores
C = The mode of the scores
D = The new mean of the scores if I score a 80 on my next test

Find $A - B + C - D$

Question 6

A bag is filled with marbles. There are 3 red marbles, 12 blue marbles, 2 purple and 5 green marbles in the bag. One marble is chosen from the bag.

A = The probability that the marble is red

B = The probability that the marble is purple

C = The probability that the marble is not blue

D = The probability that the marble is green if three red marbles are added before a marble is chosen

Find $A + B + C \bullet D$

Question 7

A = The sum of all positive divisors of 24

B = The least common multiple of 12 and 30

C = The greatest common divisor of 1001 and 77

D = The product of the first 4 postive integers

Find $(A + B - C - D)$

Question 8

Chico can paint a house in 6 hours. Annie can paint a house in 2 hours. Chico starts working nonstop at noon, and at some point during the afternoon, Annie joins him. If they finish working at 4 pm, at what time did Annie start working assuming that they work at a uniform rate?

Question 9

Simplify the following radicals

A. $\sqrt{20}$

B. $\sqrt{147}$

C. $\sqrt{12}$

D. $\sqrt{45}$

Find $\frac{B+C}{A+D}$ and leave it in the form $\frac{E\sqrt{F}}{G\sqrt{H}}$

Question 10

For each of the following systems of equations, find the sum of the values of x and y. If the system has infinite or no solutions, let the value of the sum be equal to 0 for that part.

$$\begin{aligned} A &= 5x + 13y = 8 \text{ and } -x + 2y = 3 \\ B &= 4x - 6y = -8 \text{ and } -6x + 9y = 12 \\ C &= 18x - 52y = 513 \text{ and } 16x - 54y = 509 \end{aligned}$$

Find $A + B + C$

Question 11

A = The largest area a quadrilateral can have with perimeter 20

B = The perimeter of a decagon with side length 2

C = The measure of the diagonal of a square with side length $9\sqrt{2}$

D = The number of centimeters in a meter

Find $A + B + C - D$

Question 12

Below are several statements. The value of each statement is indicated to the left. Find the sum of the values of all true statements.

$$
\begin{aligned}
(-1) &= \text{The } y\text{−intercept of the line } y = 3x + 2 \text{ is } 3 \\
(4) &= \text{The slope of the line } 4x - 2y = 9 \text{ is } 2 \\
(3) &= \text{The } x\text{−intercept of the line } y = 2x - 2 \text{ is } 1 \\
(-6) &= \text{All lines in the form } y = ax \text{ pass through the origin} \\
(5) &= \text{Parallel lines never intersect} \\
(2) &= \text{A line with a slope } 3 \text{ is steeper than a line with slope } -4
\end{aligned}
$$

Question 13

Foil each of the following parts and combine the like terms. Let the value of each part be equal to the sum of the coefficients of the expansion.

$$\begin{aligned} A &= (3x+2)(4-x) \\ B &= (9x-3y)(2x-y) \\ C &= (x+3)^2 \\ D &= (x+1)(x-1)(x) \end{aligned}$$

Find $A+B+C+D$

Question 14

Suppose you have a $4 \times 4 \times 4$ cube that has the surface of the cube painted. If this cube is broken down into smaller $1 \times 1 \times 1$ cubes, how many cubes have only

A. 0 sides painted?

B. 1 side painted?

C. 2 sides painted?

D. 4 sides painted?

Find $A + B + C + D$