Exercise Set 1 (No Calculator)

1

The "range" of a set of data is defined as the absolute difference between the least value and the greatest value in the set. Four positive integers have an average (arithmetic mean) of 7.5.

a. What is the greatest possible range of this set?

b. What is the least possible range of this set?

2

If the median of 2, 4, 6, and b is 4.2, what is the average (arithmetic mean) of these four numbers?

3

The average (arithmetic mean) of 2, 5, 8 and k is 0. What is the median of these numbers?

4

A set of numbers has a sum of 48 and an average of 6. How many numbers are in the set?

5

If the average (arithmetic mean) of 4 and x is equal to the average (arithmetic mean) of 2, 8, and x, what is the value of x?

6

The median of a set of 22 consecutive even integers is 25. What is the largest number in the set?

7

If p varies inversely as q and $p = 4$ when $q = 6$, the which of the following is another solution for p and q?

A) $p = 8$ and $q = 12$

B) $p = 8$ and $q = 10$

C) $p = 12$ and $q = 1$

D) $p = 12$ and $q = 2$

8

A set of n numbers has an average (arithmetic mean) of $3k$ and a sum of $12m$, where k and m are both positive. Which of the following is equivalent to n?

A) $\frac{4m}{k}$ B) $\frac{4k}{m}$ C) $\frac{k}{4m}$

D) $\frac{m}{4k}$

9

If y varies inversely as the square of x, then when x is multiplied by 4, y will be

A) divided by 16

B) divided by 2

C) multiplied by 2

D) multiplied by 16

10

Let $f(x, y) = Ax^2y^3$ where A is a constant. If $f(a, b) = 10$, what is the value of $f(2a, 2b)$?

A) 100

B) 260

C) 320

D) 500

11

A set of four integers has a mode of 7 and a median of 4. What is the greatest possible average (arithmetic mean) of this set?

A) 3.50

B) 3.75

C) 4.00

D) 4.25

Exercise Set 1 (Calculator)

12

Four positive integers have a mode of 4 and a median of 3. What is their sum?

13

Five different integers have an average (arithmetic mean) of 10. If none is less than 5, what is the greatest possible value of one of these integers?

14

If b varies inversely as a, and $b = 0.5$ when $a = 32$, then for how many ordered pairs (a, b) are a and b both positive integers?

15

The median of 11 consecutive integers is 28. What is the least of these integers?

16

If $y = Ax^3$ and $y = 108$ when $x = 3$, then for what value of x does $y = 62.5$?

17

A set of four positive integers has a median of 2 and a mode of 2. If the average (arithmetic mean) of this set is 3, what is the largest possible number in the set?

18

If y varies inversely as x and the graph of their relation in the xy-plane passes through the point (2, 15), what is the value of y when $x = 4$?

19

Roll	Frequency
1	4
2	5
3	4
4	6
5	5
6	6

A six-sided die was rolled 30 times and the results tabulated above. What is the difference between the average (arithmetic mean) of the rolls and the median of the rolls?

A) 0.1

B) 0.2

C) 0.3

D) 0.4

20

If y varies inversely as the square of x, and $y = 4$ when $x = 2$, then what is the value of y when $x = 3$?

A) $\frac{16}{9}$

B) $\frac{8}{3}$

C) 3

D) 9

21

At a fixed temperature, the volume of a sample of gas varies inversely as the pressure of the gas. If the pressure of a sample of gas at a fixed temperature is increased by 50%, by what percent is the volume decreased?

A) 25%

B) $33\frac{1}{3}\%$

C) 50%

D) $66\frac{2}{3}\%$

22

If the graph of $y = f(x)$ in the xy-plane contains the points (4, 3) and (16, 6), which of the following could be true?

A) y varies directly as the square of x

B) y varies inversely as the square of x

C) y varies directly as the square root of x

D) y varies inversely as the square root of x