$$B > \frac{1}{n}\sum_{i=1}^{n} x_i$$

(Be greater than average)

Mental Math – 8$^{\text{th}}$ Grade

1. Suppose that two fair six-sided dice are rolled. What is the probability that the sum of the two numbers facing up is either two or twelve? Express your answer as a reduced fraction.

2. What is the sum of two-thirds of thirty-six and three-fifths of sixty?

3. What is the sum of one squared, two cubed, and the fourth power of three?

4. What is the sum of the number of vertices, faces, and edges on a square pyramid?

5. At what x-coordinate does the line "y equals two-thirds x minus two" cross the x-axis?

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6. What is the numerator when the mixed number three-and-two-fifths is written as a reduced improper fraction?

7. How many degrees does the minute hand on a clock rotate between six a.m. and eight-fifteen a.m.?

8. What is four-sixths divided by eight-twelfths?

9. A sphere has a volume of one-sixth pi. What is the radius of the sphere? Express your answer as a reduced fraction.

10. Let Q be the set of positive integers from ten to forty, inclusively. For how many members of Q is the sum of the digits an even number?

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11. What is the positive difference between the sum of one-half and one-fourth, and the sum of one-fourth and one-eighth? Express your answer as a reduced fraction.

12. What is the slope of the line that passes through the points "six comma five", and "ten comma thirteen"?

13. How many zeroes are in quotient of five million divided by fifty?

14. If three-fourths of a number is twenty-seven, what is five-thirds of that same number?

15. A t-shirt that was on sale last week for twenty percent off went back to regular price this week. By what percent did the price increase from last week?

OVER $\longrightarrow$

16. Start with two-thirds of forty-five. Add one-sixth of seventy-two. Finally, divide by three. What is the final result?

17. In a sequence, each term after the first term is one more than twice the previous term. If the first term is twelve, what is the fourth term of the sequence?

18. What is the volume of a cube that has a surface area of one-hundred fifty?

19. If sixty percent of a number is forty-five, what is two-hundred percent of that same number?

20. In how many more ways can you arrange the letters M, A, T, H in the word "MATH" than the letters O, D, D, S in the word "ODDS"?