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1. [5 points] If $A = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10$,
    $B = 1 + 2 + 3 + 4 + 5$, and
    $C = 1 + 2$, what is $A - B - C$?

2. [5 points] Is 0 (zero) positive, negative, neither, or both?

3. [5 points] Find the sum of the first 5 prime numbers.

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4. [6 points] If $A =$ the greatest common factor of 9 and 36,
    $B =$ the number of sides of a square, and
    $C = 0 \times 1 \times 2 \times 5670809$, what is $A + B + C$?

5. [6 points] A rectangle is always a square, but a square isn't always a rectangle. True or false?

6. [6 points] One of these numbers is divisible by an even prime number. Give the letter next to it.

$$\text{A. } 245 \qquad \text{B. } 133 \qquad \text{C. } 168$$

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7. [8 points] The sum of two numbers is 6 and their difference is 2. What is their product?

8. [8 points] If $x + 2y = 50$, and $x = 20$, what is the value of y?

9. [8 points] Evaluate $\dfrac{1337}{5} \div \dfrac{7}{5}$.

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10. [10 points] Evaluate $\dfrac{156}{6} + \dfrac{278}{4}$.

11. [10 points] Find the sum of the greatest 3 digit number, the greatest 4 digit number, and the greatest 5 digit number.

12. [10 points] Evaluate, using order of operations: $2(2 \div 2) + 2 - 2 \times 2 + 2 \times 2 + 2$.

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13. [12 points] The perimeter of an equilateral triangle is 2010 inches. What is 40% of the length of one side of this triangle?

14. [12 points] How many quarters are equal to 500 nickels?

15. [12 points] Find the greatest common factor of 27, 81, and 216.

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16. [15 points] $12 \times 4 \times 8$ is the same as the product of 16 and what number?

17. [15 points] What is the remainder when 42234534 is divided by 7?

18. [15 points] If 12 paper clips cost 48 cents, how many paper clips can I get with 1 dollar?

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19. [18 points] If A = the number of weeks in 60 years (assume there are 52 weeks per year),
B = the number of minutes in 4 hours, and
C = the number of sides of a pentagon, what is $\dfrac{A}{B} + C$?

20. [18 points] Jason doesn't want to "epic fail", so he must get at least 80% of the questions correct on his next test. If there are 75 questions on the test, how many questions can he **miss**?

21. [18 points] A palindrome is a number which reads the same forwards and backwards, such as 44, 232, and 1331. What is the smallest palindrome whose digits add up to 10?

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22. [21 points] If an RC cola costs 45 cents, how many RC colas can you get with 25 dimes, 2 quarters, 10 nickels, and 1 dime?

23. [21 points] If Homer can eat 60 doughnuts in 4 hours, how many doughnuts can he eat in 5 days?

24. [21 points] Find the sum of the prime numbers in the list below:

$$2, 7, 13, 33, 39$$

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25. [25 points] Five numbers have an average of 8. When a sixth number is added, the numbers have an average of 9. What is the added number?

26. [25 points] Find the product of 2009 and 200.

27. [25 points] What is the least common denominator for the fractions $\frac{2}{105}$ and $\frac{1}{98}$?

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28. [30 points] For the past 10 weeks, I record how many coins I find:

$$5, 8, 2, 5, 8, 2, 4, 4, 2, 7$$

What is the sum of the median and mode of the list above?

29. [30 points] Find the sum of the prime factors of 144.

30. [30 points] If I take a certain number, multiply it by 3, and subtract 20, I have the same number. What is this number?

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31. [35 points] List the numbers of the statement(s) that are true: (i.e. if 1 and 3 are true, write "1, 3")

1. The product of a number and 0 is 1   2. $5475454387 \times 0 = 1$ 3. There are 3600 seconds in an hour.

32. [35 points] If $A =$ the area of a square with side length 15,
$\qquad$ $B =$ the area of a circle with radius 9, and
$\qquad$ $C =$ the area of a rectangle with sides 20 and 13, list A, B, and C from greatest to least.

33. [35 points] Leonardo Pisano, also known as Fibonacci, is known for his sequence:

$$1, 1, 2, 3, 5, 8, 13, 21...$$

What is the next term in this sequence?

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34. [40 points] How many two digit numbers are greater than the sum of their digits?

35. [40 points] How many two digit numbers exist such that the sum of their digits is greater than 9?

36. [40 points] How many inches are in 2009 yards?

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37. [50 points] Consider the pattern RACECARRACECARRACECAR... What is the 655th letter?

38. [50 points] Find the next number in the sequence:

$$5, 9, 17, 33, 65...$$

39. [50 points] If $1 + 3 + 5 + 7 + \cdots + 99 = 2500$, what is $2 + 4 + 6 + 8 + \cdots 100$?

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40. [100 points] Find (x, y, z) such that the following equations are satisfied:

$$x + y + z = 2009$$
$$x + y + 2z = 3018$$
$$2x + y - z = 491$$

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