



In Class Exercises Set A

Answers and Explanations: Math Algebra 1

- 1) The answer is **C**). To isolate L , multiply both sides by 3, divide by m , and take the resulting square root. This gives you
$$L = \sqrt{\frac{3I}{m}}. (1)$$
- 2) The answer is **B**). This is less of an inequalities problem and more of a word translation problem. Luke can use a maximum of 50 cones, so the total number of cones $s + d$ must be less than or equal to 50. Multiplying the cost of each cone by its cost yields that to make at least \$120, $2s + 3d$ must be greater than or equal to 120. (1)
- 3) The answer is **B**). To isolate the variable, first multiply both sides by 8, giving $3k + 18 = 8k + 8$. Subtract $3k$ and 8 from both sides to get $10 = 2k$. Divide both sides by 2 to get $k = 5$. (2-)
- 4) The answer is **C**). While there are multiple ways to solve this system, elimination is most efficient. Multiply the bottom equation by three to get $6x - 3y = 3$. Combine this with the top equation to get $10x = 20$; divide both sides by 2 to get $x = 2$. To solve for y , plug back into either equation, which will yield a value of 3. (2)
- 5) The answer is **D**). While you could solve for the product of G , M , and m , the problem can be solved more efficiently by simply using the data and the known relationship. If the radius is cut in half and force is proportional to $1/r^2$, then the force will be quadrupled; thus, when radius is halved from 5000 m to 2500 m , the force quadruples from 100 N to 400 N . (2)
- 6) The answer is **4**. For a system to have no solutions, the lines must be parallel. Which is true if their slopes are equal. The slope of the first line can be solved for by subtracting x from both sides: $y = -x + 10$; hence, the slope is -1 . Similarly, the slope of the second equation is $-4/k$, which must also equal -1 ; thus, $k = 4$. (2+)
- 7) The answer is **6**. While either synthetic or long polynomial division could be used here, the most efficient solution uses the Remainder Theorem. The remainder when $f(x)$ is divided by $x-1$ is equal to $f(1)$. Plugging in 1 into $f(x)$ gives 6 as the answer. (3)
- 8) The answer is **34**. This problem may seem tricky, but all you need to do is eliminate the z variable. To do this, multiply the bottom equation by two and combine. This conveniently gives you $7x + 7y = 34$. (3)