**1. C**

Plug each set of x’s and y’s into the inequality.

For point (6,1):

This inequality is true, so C is the correct answer.

**2. E**

By manipulating the original equation, you can figure out that none of the answer choices are equivalent to .

**3. C**

Subtract the two equations to get

.

Plug in small numbers as x to see if they satisfy the equation. The number 2 works.

The correct point is (2, 16).

**4. A**

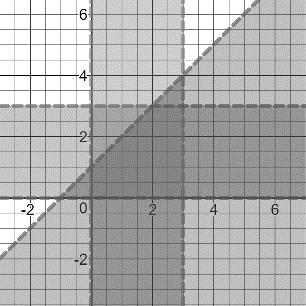
Set up a ratio: . After cross-multiplication, you get the equation:

Solve for x, to get .

Both Superman and Batman bought 11 plushies, so the total amount of plushies bought is 22.

**5. C**

The intersection of these inequalities looks like this:



The area consists of a square with dimensions 3 and 3 (resulting in an area of 9), minus a triangle with dimensions 2 and 2 (with an area of 2).

9 – 2 = 7

**6. D**

Set up two equations:

Multiply the first equation by 3 and subtract it from the second equation.

**7. B**

The mean, or average, is (2+3+5+5+7+9+11)/7, or 6.

The median, or middle number, is 5.

The mode is 5.

The range is 11 – 2 = 9

6 + 5 + 5 + 9 = 25

**8. D**

The first quartile of the data set is 3, and the third quartile is 9.

9 – 3 = 6

**9. B**

The median, or middle number, is 81.

The mode, or most common number, is 69.

The range is 99 – 63 = 36.

81 + 69 + 36 = 186

**10. D**

The plot given in Question 9 is a stem-and-leaf plot.

**11. B**

Pie charts are for categorical data, not quantitative data. A line graph is used to represent change over time. Spaghetti plots are used for displaying flows through systems. A histogram is the right choice.

**12. A**

The probabilities must add to 1. , .

**13. C**

To get the 5th pentagonal number, plug 5 into the equation .

**14. A**

Since b and c appear twice in the expression, they must be 43 and 41 in any order. That means a and d must be 11 and 13.

**15. E**

In the given arithmetic sequence, the number of hawks in each kettle increases by 3 each time. On the 44th kettle, the number of hawks will have increased by three, forty-three times.

**16. D**

The equation gives the sum of consecutive integers starting with 1. If .

**17. D**

Together, Brandon and the Green Lantern can defeat 9 goons in one hour. 100/9 = . Rounding up gives the answer 12.

**18. C**

Brandon and the Green Lantern must use 12/10 more of their power to defeat 12 big kahunas instead of 10. Furthermore, they must use 10/4 more of their power to defeat these big kahunas in 4 hours instead of 10. . They must use three times as much power, resulting in them having to use 30% of their power.

**19. D**

The units digit of is 7, the units digit of is 9, the units digit of is 3, the units digit of is 1, and the units digit of is 7 again. This pattern continues indefinitely.

To find the units digit of , divide 2018 by 4 and find the remainder, which is 2. This means that the units digit of is the second number in the cycle, 9.

**20. C**

You can compute the tens digit of by finding the tens digit of . . This means that the tens digit of is also 3.

**21. D**

**22. A**

The distance between Green Lantern and Sinestro can be modeled by a right triangle with legs 6 and 8. The hypotenuse, or the length of the laser beam, is 10.

**23. C**

**24. A**

Be careful of the order of operations!

**25. B**

Martian Manhunter’s 40 Martian dollars are worth .60

He can buy 50 water bottles.

**26. D**

**27. A**

Answer choice A accurately represents compound interest.

**28. B**

Use as many Ligmas, the most valuable currency, as possible. You can make perfect change using 7 coins: with 5 Ligmas, one Sawgon, and one Bar.

**29. A**

Make a table, starting with combinations that have 0 pennies, combinations that have 5 pennies, combinations that have 10 pennies, and so on. Your table should look like this:

|  |  |  |  |
| --- | --- | --- | --- |
| Pennies | Nickels | Dimes | Quarters |
| 0 | 0 | 0 | 1 |
| 0 | 1 | 2 | 0 |
| 0 | 3 | 1 | 0 |
| 0 | 5 | 0 | 0 |
| 5 | 0 | 2 | 0 |
| 5 | 2 | 1 | 0 |
| 5 | 4 | 0 | 0 |
| 10 | 1 | 1 | 0 |
| 10 | 3 | 0 | 0 |
| 15 | 0 | 1 | 0 |
| 15 | 2 | 0 | 0 |
| 20 | 1 | 0 | 0 |
| 25 | 0 | 0 | 0 |

**30. D**