1. **C**

2. **A**

3. **B**

Use the Pythagorean Theorem when finding the distance between two coordinates (5,9), (3,5).

4. **D**

To find the slope between two coordinates, find the difference between the y coordinates divided by the difference between the x coordinates.

**= 2**

5. **B**

To find the midpoint of two coordinate, find the average of the x coordinates and the average of the y coordinates.

**2d the ye the average of the xts, find the average of the y points and the x pointsd by the difference between the x points.(4, 7)**

6. **B**

A perpendicular bisector is a line that bisects another line exactly through the midpoint and at a ninety-degree angle

A perpendicular slope would be the inverse and opposite of the original slope. So the perpendicular slope to a slope of 2 would be **.** To also be a bisector, the line must pass the midpoint, (4,7). Only B satisfies the question.

7. **A**

The number of arrangements of the word “TUNES” is 5!, which is 120. Subtract 1 from 120 so that you don’t count the word “TUNES” itself.

8. **B**

The geometric sequences starts with 8 and triples each day, which can be expressed as the following for the seventh day.

9. **D**

The pattern is a geometric sequence that starts with 8 and triples 3 each day after, which can be modeled by **.**

10. **D**

I. is not true because a geometric sequence does not increase linearly.

II. is true because the number of stutters increases as the number of days increases.

III. is true because of statement II and infinite days would equal infinite stutters.

So II and III are true.

11. **A**

3 hours and 6 minutes is equivalent to 186 minutes. Subtract 30 from 186 to account for the time it takes Porky to travel to his appointment. 156 minutes divided by 3 minutes per joke equals 52 jokes Daffy can tell Porky.

**12. B**

Subtract the speeds between the two, 50 - 12 = 38 miles per hour. So it takes 1/38 of an hour to cover one mile. Converting this into minutes be multiplying 1/38 by 60 would equal to

**13. B**

Bugs Bunny eats at an exponential rate, 1+2+4+8+16+32+64+128+256+512…. On June 10, he will have eaten 1023, which is more than 1,000.

**14. D**

Multiply the first equation by 4 and the second equation by 6. Then, subtract the two equations.

-

=

Plug y = -6 into one of the equations.

**15. C**

**16. A**

The difference in speed is 260 – 180 = 80 meters per minute. The track is 400 meters. It takes 5 minutes at 80 meters per minute to reach 400 meters, which is when Andrew would lap Bugs. 5 minutes is 1/12 of an hour

**17. C** Sum the exponents of each term. The largest sum is the degree of the polynomial.

consists of 6 variables multiplied together, so the degree is 6.

**18. D**

The name of a polynomial with the degree of six is sextic.

**19. A**

A system of equations can represent the time spent and number of signs, where *d* represents “Duck Season” sign and *r* represents rabbit season signs. 1 hour 36 minutes was converted to 96 minutes.

Solving the systems equations results in *d* = 9, *r* = 10. The difference would be 10 – 9 = 1

**20. B**

Only the case of statement #2 is a lie holds true for the other statements.

**21. B**

The system of equations will be impossible if the equations can be subtracted to result in a false equality. To achieve this, make the ratio of x’s to y’s on both equations the same.

12:3 = 16:4

So, *a* must be 4.

Subtracting the two equations results in .

**22. A**

-2x – 5 < 11 🡪 -2x < 16 🡪 x > -8

is greater than 0 for all values greater than -2.

The overlap between these two ranges is -8 < x < -2.

**23. C**

The difference in speed is 5mph. The distance gained from the head start is

. Running faster by 5mph for 2 miles, will take 2/5 hours or 24 minutes

**24. E**

Let x = the number of red marbles in the bucket. There are x red marbles, 2x blue marbles, and 6x/2 = 3x green marbles in the bucket. The probability of drawing a red marble is:

**25. D**

Starting at 2 mph and improving by 7 mph per day, it will take 4 days to improve to 30mph.

**26. C**

Hammering every 4 times resets back to 0. So, after 8 times, Barnyard Dawg is hit 2 more times, which is 4 inches.

**27. B**

Hammering every 3 times resets back to 0. So, after 9 times, Barnyard Dawg is hit 1 more time, which is 2 inches.

**28. A**

Answer choice A demonstrates the associative property instead of the commutative property. The rest of the answer choices are variations of the commutative property.

**29. B**



**30. B**

2512 ÷ 80 is about equal to 31 full trips around the yard.