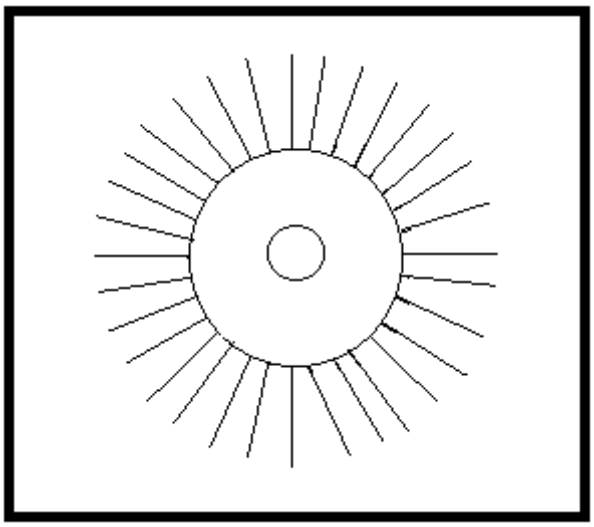
SOL Droodle Review for Algebra II



You probably thought the title of this droodle was
"An Outspoken Wheel" or maybe
"A Circular Centipede Under A Beach Umbrella"
or maybe even

"__ __."
20 18 10 17 14 1 16 11 11 14 7 15 6 16 3 13 8 9 17 16 15

But the real title is

"__ __
20 18 19 4 5 12 17 13 2 6 10 13 15 14 19 16 8 7 10 2

__ __."
3 16 11 18 19 19 5 19 11 20 18 6 19 18

To determine the titles to this droodle, solve the 20 Algebra II SOL questions. Then replace each numbered blank with the letter corresponding to the answer for that problem.

Algebra II SOL Review

1. If $q < 10$, which of the following statements is true?

A $q + 3 < 7$

B $q + 3 < 13$

C $4q > 40$

D $4q < 14$

2. Which of the following is an example of one of the associative properties?

F $(3x)y = y(3x)$

R $3a^2 + 0 = 3a^2$

O $2a(a-2) = 2a^2 - 4a$

G $(2a+1) + 2b = 2a + (1+2b)$

3. $\dfrac{x^2 - 9}{x^2 - 6x + 9} =$

C $\dfrac{1}{6x}$

A $\dfrac{1}{x-3}$

F $\dfrac{x+3}{x-3}$

E $\dfrac{x-3}{x+3}$

4. Which is equivalent to $\dfrac{\frac{1}{x}-\frac{4}{y}}{\frac{2}{x}+\frac{5}{y}}$?

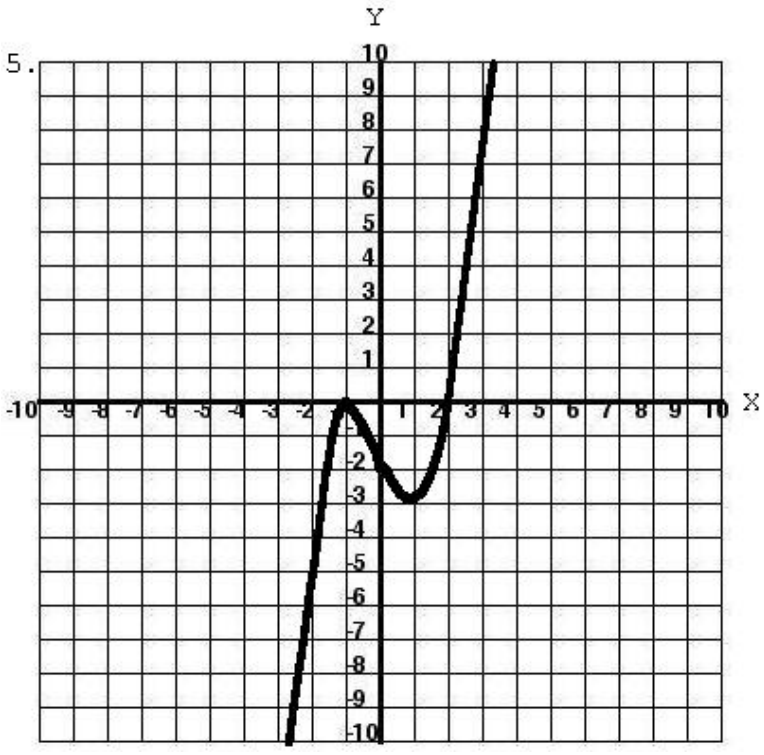
A $\dfrac{x-4y}{5x+2y}$

X $\dfrac{y-4x}{2y+5x}$

I $\dfrac{x^2y^2}{(y-4x)(2y+5x)}$

S $2y^2-3xy-20x^2$

5.



Which is an apparent zero of the function above?

C - 4
R - 2
A 0
Y 2

6. Which is equivalent to $2\sqrt{12} + 3\sqrt{3}$?

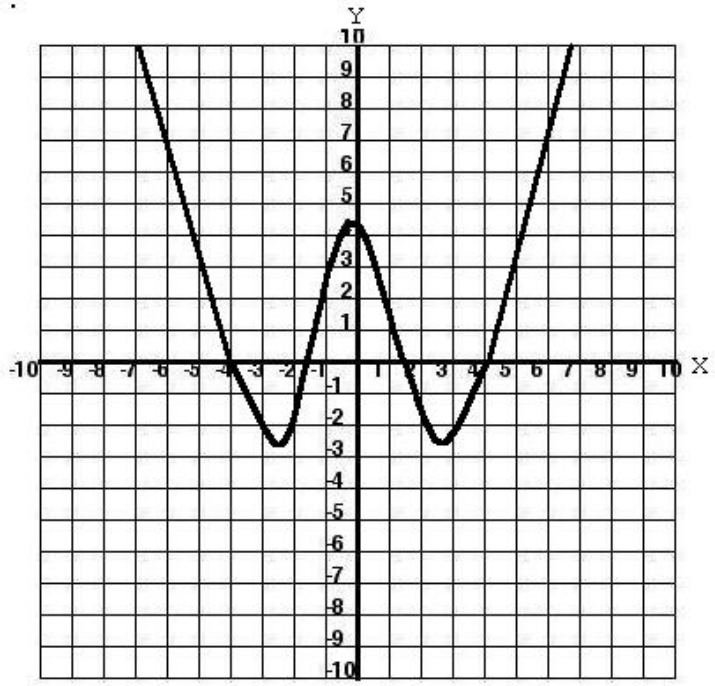
L $16\frac{1}{2}$

O $5\sqrt{15}$

H $7\sqrt{3}$

I $7\sqrt{6}$

7.



This is a portion of the graph of a polynomial function. If written in order of descending powers, which could be the first term of the polynomial?

R x^2

A x^3

I x^4

L x^5

8. What is the sum of the series defined by $\sum_{n=0}^{4}(3-2n)$?

R -5
O -3
A -1
D 0

9. Two geometric means between 2 and 54 are –

A 4 and 12
B 6 and 12
C 6 and 18
D $19\frac{1}{3}$ and $36\frac{2}{3}$

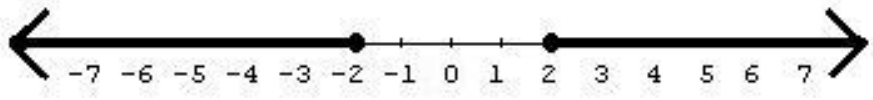
10. If $a_n = 2^{n-1}$, then $a_4 =$

U 15
N 8
I 7
T 6

11. The time it takes to travel a certain distance varies inversely as the average rate of travel. Averaging 42 miles per hour, it takes Andrea 5 hours to drive to Roanoke. If it took her 4 hours and 20 minutes to reach Roanoke on her last trip, what was her average rate of travel?

M 36.4 mi./hr
I 46.7 mi./hr
L 48.5 mi./hr
E 49.4 mi./hr

12.



Which of the following inequalities has the solution indicated on the number line above?

I $|x| \le 2$

D $|x| \ge 2$

E $|x-2| \le 4$

N $|x+2| \ge 0$

13. Which is the solution set for $x^2 - 4x = 8$?

R $\{2 \pm 2i\}$

U $\{2 \pm 2\sqrt{3}\}$

L $\{4, 2\}$

E $\{-4, 2\}$

14. What value of *y* is the solution to the equation

$$\frac{4y-10}{3} + \frac{6y+8}{2} = 9 \text{ ?}$$

A $y = \frac{28}{5}$

W $y = \frac{25}{13}$

O $y = \frac{8}{5}$

L $y = \frac{23}{24}$

15. Which is the solution set for $\sqrt{x+10} = 3\sqrt{2x+3}$?

K $\left\{\frac{1}{5}\right\}$

I $\left\{\frac{1}{2}\right\}$

T $\{-1\}$

E $\{1\}$

16. Which equation is ***not*** equivalent to $\frac{1}{3} - \frac{1}{12} = \frac{1}{x}$?

H $4x - x = 12$

A $4x - 12x = 12$

L $\frac{3}{12} = \frac{1}{x}$

F $\frac{x}{3} - \frac{x}{12} = 1$

17. Which is a zero of $f(x) = x^2 + x - 6$?

O –3
N –2
E 0
S 3

18. A certain third-degree polynomial function has zeros at –3, 2, and 3. Which could ***not*** be a factor of the expression that defines the function?

S x + 2
I x – 2
D x + 3
E x – 3

19.

$Q = \begin{bmatrix} -1 & -3 \end{bmatrix}$

$R = \begin{bmatrix} 2 \\ 1 \end{bmatrix}$

Which matrix is the product $Q \cdot R$?

Z $\begin{bmatrix} -6 \end{bmatrix}$

E $\begin{bmatrix} -5 \end{bmatrix}$

R $\begin{bmatrix} -2 & -3 \end{bmatrix}$

O $\begin{bmatrix} -2 & -6 \\ -1 & -3 \end{bmatrix}$

20. What is the solution set to the following set of equations?

$$\begin{cases} y + 2x = 2 \\ x^2 + 3y = 22 \end{cases}$$

R $\{(-8, 18) \text{ and } (2, -2)\}$

E $\{(-8, 2) \text{ and } (18, -2)\}$

A $\{(8, -14) \text{ and } (-2, 6)\}$

L $\{(-2, 2) \text{ and } (18, -8)\}$