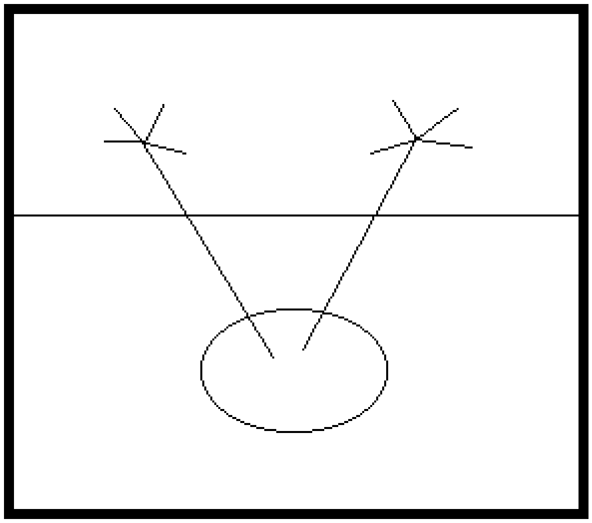
SOL Droodle Review for Algebra II



You probably thought the title of this droodle was
"Two palm trees on a desert island" or maybe even

" 19   15 17 3 12 20 16   13 11 18 12   18 13 17   18 10   14 20 18 14 ."

But the real title is

" 19 9   20 19 16 6 8   1 11 16 7   13 12 17   5 19 2 15 12 18   19

10 20 16 8   14 18 16 17 9 15   13 17 16 4 ."

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.

1. What is the total of $\sqrt{245}+\sqrt{125}-\sqrt{80}$?

D $2\sqrt{5}$

R $4\sqrt{5}$

B $8\sqrt{5}$

E $16\sqrt{5}$

2. What is the solution to $\frac{z-3}{2}=4z-5$

R $z=\frac{-13}{9}$

S $z=-1$

T $z=\frac{2}{3}$

U $z=1$

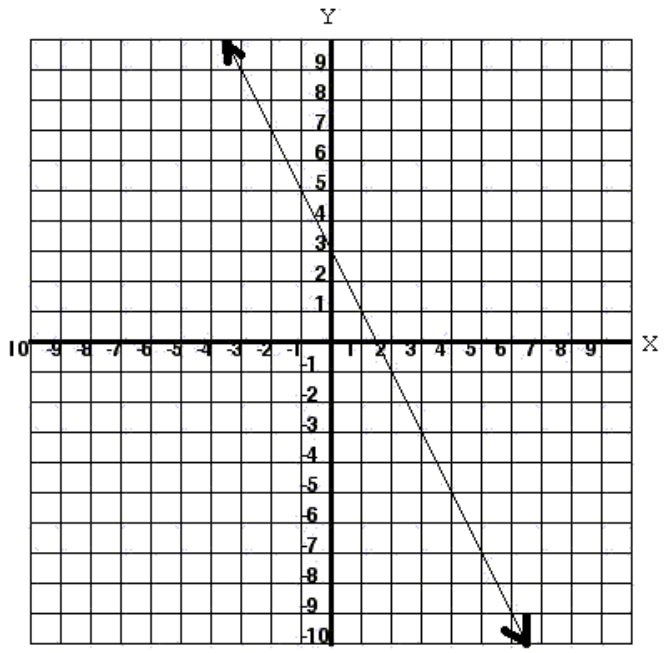
3. What is most probably the equation of the function shown?

O $y = -2x - 3$

P $y = -2x + 3$

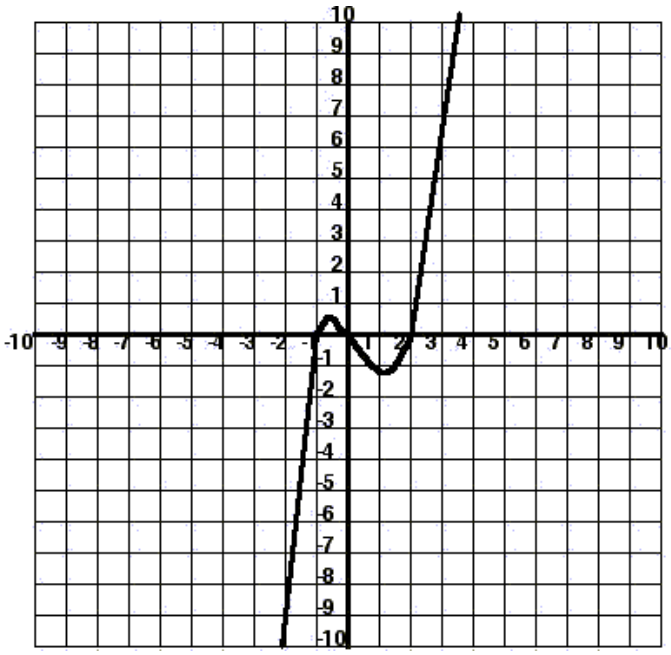
S $y = 2x - 3$

E $y = 2x + 3$



4. Which is most likely a factored form of the function of the graph shown?

A $x(x - 1)(x + 2)$
M $x(x + 1)(x - 2)$
N $x(x^2 + x + 1)$
D $x(x^2 - x - 1)$



5. Name the property which is illustrated below:

$(x + 3) + 5 = x + (3 + 5)$

A Transitive Property of Equality
B Commutative Property of Addition
C Associative Property of Addition
D Distributive Property of Multiplication over Addition

6. What is the product of the polynomials $(4c - 1)$ and $(3c + 5)$?

K $7c - 4$
L $12c^2 + 17c - 5$
P $12c^2 + 23c + 5$
R $7c^2 + 6c - 5$

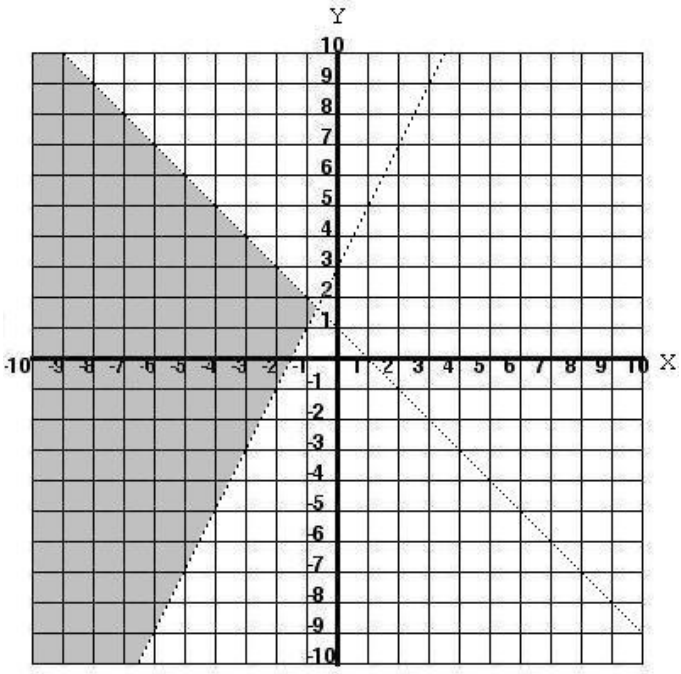
7. The graph shown below represents the solution to which system of inequalities?

C $\begin{cases} -2x + y \geq 3 \\ x + y \leq 1 \end{cases}$

D $\begin{cases} -2x + y > 3 \\ x + y < 1 \end{cases}$

E $\begin{cases} -2x + y \leq 3 \\ x + y \geq 1 \end{cases}$

F $\begin{cases} -2x + y < 3 \\ x + y > 1 \end{cases}$



8. Which is equivalent to $\left(\sqrt{5}\right)^3$?

V 5

W $5^{\frac{1}{3}}$

X $5^{\frac{2}{3}}$

Y $5^{\frac{3}{2}}$

9. Which is a factor of $6a^2 + 5ab - 6b^2$?

N $(2a + 3b)$

O $(2a - 3b)$

P $(3a + 2b)$

R $(3a + 3b)$

10. Which is equivalent to $(4 - 2i)(5 + 3i)$?

S 26
T 12
U 14 + 2i
V 26 + 2i

11. Which is equivalent to $(6 + 2i) - (4 + 3i)$?

I 2 – i
J 2 + i
K 2 + 5i
L 10 – i

12.

x	f(x)
-2	9
0	-1
2	-3

The table shows some elements of a function.
Which equation is *most* likely a rule for the function?

E $f(x) = -x - 1$

F $f(x) = 2x^2 - 1$

G $f(x) = x^2 - 2x - 1$

H $f(x) = x^2 - 3x - 1$

13. Which is a zero of the function
f(x) = 3x – 12 ?

T -12
U 0
V 3
W 4

14. If the domain of $f(x) = 2x^2 - 3$ is limited to $\{-3, -1, 1, 3\}$,
What is the range?

Q $\{-21, -5, -1, 15\}$
R $\{-21, 15\}$
S $\{-1, 15\}$
T $\{1, 5, 15, 21\}$

15. $f(x) = x^2 - 2x$
$g(x) = x - 3$

Which of the following expressions represents $g(f(x))$?

F $x^3 - 5x^2 + 6x$
G $x^2 - 2x - 3$
H $x^2 - 3x - 3$
I $x^2 - 8x + 9$

16. Which is the solution to $|3x - 2| = 6$?

P $\frac{-4}{3} \le x \le \frac{8}{3}$
R $x = \frac{-4}{3}$ or $x = \frac{8}{3}$
S $x = \frac{-8}{3}$ or $x = \frac{8}{3}$
T $x \le \frac{-4}{3}$ or $x \ge \frac{8}{3}$

17. What is the solution set for
$x^2 + 6x - 16 = 0$?

N {0, 4}
O {-8, 2}
P {-3, 5}
E {-2, 8}

18. Which is the solution set for
$2x^2 + 2x + 1 = 0$?

S $\left\{\pm\frac{1}{2}\right\}$
T $\left\{\frac{-1}{2} \pm \frac{1}{2}i\right\}$
U $\left\{\frac{-1}{2} \pm i\right\}$
V $\{-1 \pm i\}$

19. A pendulum *L* inches in length takes *t* seconds to make one full cycle according to the equation

$$t = 2\pi\sqrt{\frac{L}{384}}$$

To the nearest hundredth, how many seconds would it take a pendulum 12 inches long to make one full cycle?

G 0.01 sec
R 0.20 sec
A 1.11 sec
M 35.53 sec

20.

If $\begin{cases} x+y=1 \\ 2y+z=3 \\ x+y-z=4 \end{cases}$ then $\begin{bmatrix} x \\ y \\ z \end{bmatrix}$ =

E $\begin{bmatrix} -2 \\ 3 \\ -3 \end{bmatrix}$

L $\begin{bmatrix} 4 \\ 10 \\ 0 \end{bmatrix}$

V $\begin{bmatrix} \frac{3}{2} & \frac{-1}{2} & 0 \\ 0 & 1 & \frac{1}{2} \\ 1 & 0 & 1 \end{bmatrix}$

I $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 6 & 3 \\ 4 & 4 & -4 \end{bmatrix}$