

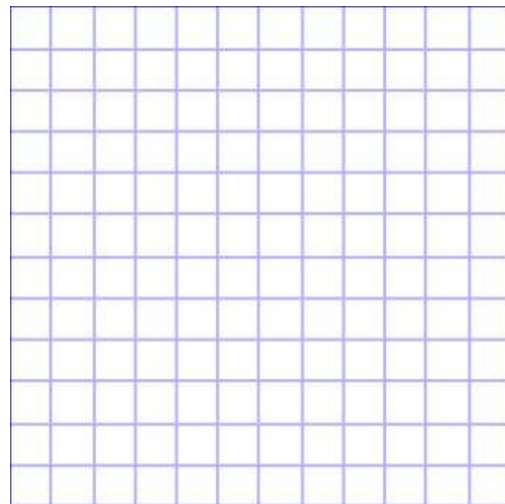
4. Find the equation of a line in slope-intercept form that passes through the points (2,1) and (-1,3).

Equation: _____

5. A company has figured its profit function as $P(x) = -\frac{1}{4}x^2 + 2x - 3$. What is the maximum profit for this company?

Maximum Profit: _____

6. Graph the rational function $y = \frac{2x-1}{x+3}$. List all zeros and asymptotes.



Zeros: _____ Horizontal asymptotes: _____ Vertical asymptotes: _____

7. How much money must be invested at 4% interest, compounded monthly, in order to have a balance of \$10,000 in ten years? Give your answer in exact form.

Initial amount of money: _____

8. If $\log x = -3$, $\log y = 2$, and $\log z = 1$, evaluate: $\log \frac{z\sqrt{y}}{x^2}$.

$$\log \frac{z\sqrt{y}}{x^2} = \underline{\hspace{2cm}}$$

9. Solve for x : $\log_2 x + \log_2(x-1) = 1$.

$$x = \underline{\hspace{2cm}}$$

10. Find the determinant of the matrix: $\begin{bmatrix} 3 & 0 & -1 \\ 2 & -2 & 0 \\ 1 & -3 & 2 \end{bmatrix}$

determinant = _____

11. How many four-topping pizzas can be ordered from a restaurant that offers seven topping choices?

How many pizzas? _____

12. Two of the following matrices may be multiplied. Write which ones (in the correct order!) and find

the product: $A = \begin{bmatrix} 0 & 2 \\ -2 & 1 \\ 4 & -1 \end{bmatrix}$, $B = \begin{bmatrix} 1 \\ 2 \\ -3 \end{bmatrix}$, $C = \begin{bmatrix} 3 & -4 \\ -2 & 1 \end{bmatrix}$.

_____ = _____
(matrices multiplied) (answer)

13. Let $f(x) = x^2 - x$, $g(x) = 2x + 1$.

a. Find $(f \circ g)(x)$, simplifying as much as possible.

$(f \circ g)(x) =$ _____

b. What is the domain of $(f/g)(x)$?

Domain: _____

14. Find the equation of a parabola with zeros -1 and 2 and y-intercept (0,4).

Parabola equation: _____

15. On Sunday, you receive three flowers. On Monday, you receive six flowers. On Tuesday you receive twelve flowers. If the pattern continues for the rest of the week, how many flowers do you receive on Saturday? How many do you have in total?

How many flowers on Saturday? _____ Total number of flowers? _____

16. Expand the binomial $(3x-y)^4$

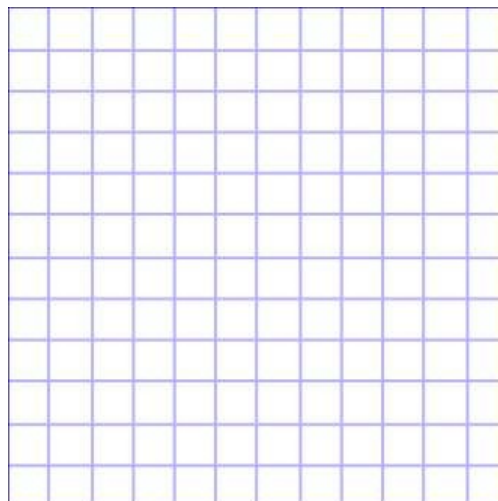
$(3x-y)^4 =$ _____

17. A potter makes two kinds of painted pots, A and B. It takes 2 pounds of clay to make pot A, and 3 pounds of clay to make pot B. It takes 2 bottles of paint to paint pot A, and 1 bottle of paint to paint pot B. If the potter has 26 pounds of clay and 14 bottles of paint, how many of pot A and pot B should be made so there is no waste?

18. Compute: $\sum_{j=0}^5 j^2 - j$. # of pot A: _____ # of pot B: _____

$$\sum_{j=0}^5 j^2 - j = \underline{\hspace{2cm}}$$

19. Graph: $y=2x^2-3x$, labelling at least three points on your graph.



20. Solve:

$$\begin{aligned}x+y+z&=3 \\ 2y-z&=10 \\ 2x+3z&=-4\end{aligned}$$

$x =$ _____ $y =$ _____ $z =$ _____