

1. Solve $x^2 - 3x - 10 = 0$ $x = 5$; $x = -2$ ~~$\frac{-10}{2} = -5$~~ $(x-5)(x+2)$
 $x = 5$ $x = -2$
2. Solve $(2x - 3)(x + 4) = 0$ $x = \frac{3}{2}$; $x = -4$
 $x - 3 = 0$ $x + 4 = 0$
 $2x = 3$ $x = -4$
 $x = \frac{3}{2}$
3. Find the vertex of $x^2 + 2x - 8$ $(-1, -9)$ * Graph
4. Find the axis of symmetry of $x^2 + 6x + 5$ $x = -3$ * Graph
5. If $f(x) = 3x - 7$, find $f(-2)$ -13 $f(-2) = 3(-2) - 7 = -6 - 7 = -13$
6. If $f(x) = 3x - 7$, find x when $f(x) = 17$ $x = 8$
 $17 = 3x - 7$ $x = 8$
 $24 = 3x$
7. Given $a = 4$, $b = -2$, $c = 5$, evaluate: $a^2 - c + 2b$ 7
 $4^2 - 5 + 2(-2)$
 $= 16 - 5 + (-4) = 7$
8. What is the slope of $(5, 4)$ and $(-2, 6)$? $-\frac{2}{7}$
 $\Delta x < \frac{5}{-2} \mid \frac{4}{6} > \Delta y$ $\frac{6-4}{-2-5} = \frac{2}{-7}$
9. If $f(x) = 2^x$, what is $f(4)$? 16 $f(4) = 2^4 = 16$
10. Stacy has \$500 in her bank account. She wants to save money for a car and plans on depositing \$60 each week, x . Write a function/expression that represents this situation. $y = 60x + 500$
11. How many weeks will Stacy have to save in **Problem 10**, if the car she wants is \$4,500? 67 weeks
 $4500 = 60x + 500$
 $4000 = 60x$
 $67 = x$
12. Kristin spent \$131 on shirts. Name brand shirts, x , cost \$28 and regular shirts, y , cost \$15. She bought a total of 7 Shirts. Write a system of equations to represent this situation. $28x + 15y = 131$
 $x + y = 7$
13. How many of each type of shirt did Kristen buy in **Problem 12**? 2 name brand (x) 5 regular (y)
14. Given: $g(x) = 49 + 6x$, what is the slope? 6

15. Given the following, write a linear equation to represent the pattern. $y = 10x + 5$

x	0	1	2	3
y	5	15	25	35

Linear (constant rate of change)
 y-int
 Slope = $\frac{\Delta y}{\Delta x} = \frac{10}{1} = 10$

16. Given $f(x) = x^2 + 4$ and $g(x) = 3^x$, fill in the blank with the appropriate symbol (<, ≤, =, >, ≥).

$f(5) = 5^2 + 4 = 25 + 4 = 29$
 $g(5) = 3^5 = 243$
 $f(5) < g(5)$

17. Given the pattern 10,000, 5,000, 2,500, 1,250, 625, ... what is the next term?

312.5

exponential
 $\times 0.5$ $\times 0.5$ $\times 0.5$ $\times 0.5$

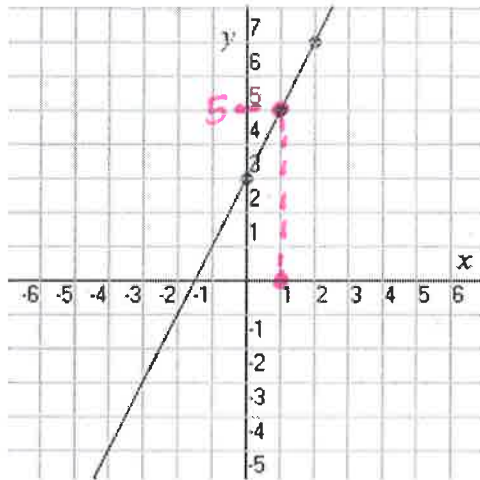
18. Given the pattern 3, 12, 48, 192, 768, 3072, ... what is the FIRST term?

0.75

$\div 4$ $\times 4$ $\times 4$ $\times 4$

19. What is $f(1)$?

5



20. What is the equation of the line in #19?

$y = 2x + 3$

$y = mx + b$

Slope = $\frac{2}{1} = 2$

y-int = 3

21. Given the set of numbers: 4, 6, 6, 8, 8, 10, 10, 11, 12, 20. Find the median and the Interquartile range.

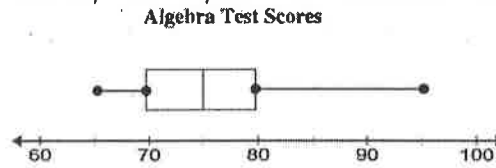
Median = 9

IQR = 5

↑ Q1 9 ↑ Q3

$IQR = Q3 - Q1$
 $= 11 - 6$
 $= 5$

Twenty of Mr. Smith's algebra students recently took a quiz. The results of the quiz are shown on the box-and-whiskers plot below.



22. What score was greater than or equal to 75% of all other scores on the quiz?

the score of 95

23. Mr. Smith regularly sets the passing score on his quizzes to be the score of the *lower quartile*. What is the passing grade on the quiz?

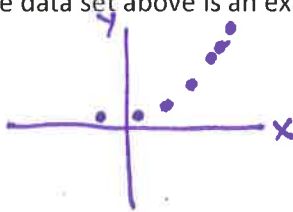
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Use the following to answer questions 24 and 25.

The average NBA athlete's salary is given below in the table.

Years since 1980	Annual Salary (thousands of dollars)
0	135
5	320
10	805
15	2000
16	2405
17	2890
18	3460

24. When graphed, the data set above is an example of a(n) exponential scatterplot.



25. Using technology, calculate the regression in the form that is suitable for the scatterplot. What is the equation of the regression in the correct form?

$$y = 132.5(1.2)^x$$