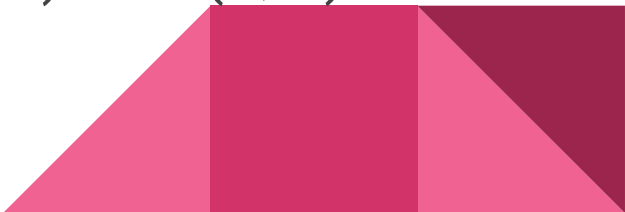


Algebra 1 Exam Review

1. Evaluate: $(4x - 6) - (6x + 4)$ if $x = -7$
2. Distribute: $-6(3x - 12)$
3. Simplify: $7(x - 6) + 4(-3x - 5)$
4. Solve: $10 - (3x + 5) = 20$
5. What is the last step if you solve this sentence: *Twice a number decreased by 7 is 15?*

6. A person's IQ score varies directly with their TerraNova test scores in lower grades. If a person with an IQ of 100 gets a score of 80 on the test, what does a person with an IQ score of 125 get?
7. What is the slope of the line between the points $(3, 7)$ and $(-4, 1)$?
8. Find the equation of the line through $(3, 2)$ and $(5, 6)$
- 

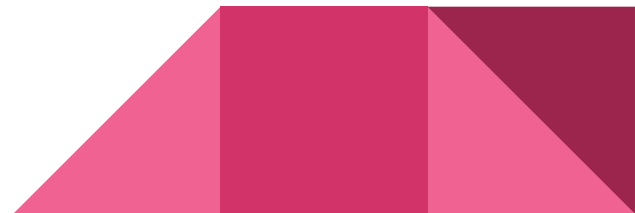
9. Which Equation represents the relation, x to y , given the points $(1, 4)$, $(2, 6)$, $(3, 8)$ and $(4, 10)$?

a. $y = 2x$

b. $y = 2x + 2$

c. $y = x + 3$

d. $y = x + 2$



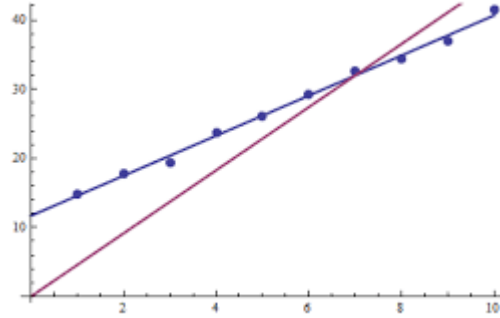
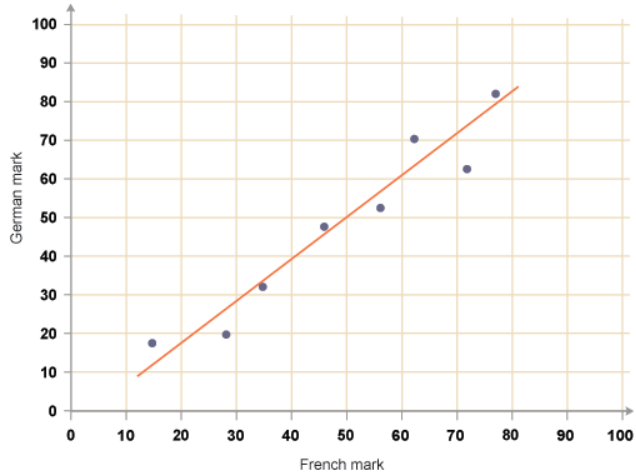
10. Which is NOT a function? (look for repeating x's)

- a. $\{(3, 2), (-5, 2), (4, 6)\}$
- b. $\{(5, 4), (5, -4), (-3, -6)\}$
- c. $\{(-6, 10), (-8, 10), (-4, 10)\}$
- d. Both a and c

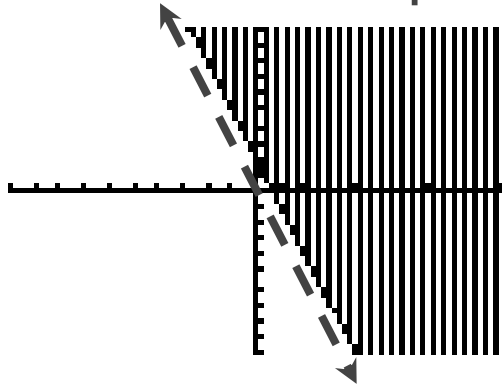
11. Graph the equation $y = -2x + 4$



12. Line of best fit. You can see from the images below that a “Line of best fit” is exactly that. Draw the best line that fits the data.



13. What is the correct equation for the graph:



a. $y < -3x + 2$

b. $y > -3x + 2$

c. $y \leq -3x + 2$

d. $y \leq -3x + 2$

14. Solve and Graph: $3x + 1 \geq 13$

15. Solve: $3x + 2 < 5x - 8$

16. Solve: $|2x + 6| + 12 \leq 20$

Solve: $|2x + 6| + 12 \leq 20$

Because it is \leq the graph is automatically "Between"



You just have to find the boundry points

$$\begin{array}{r} |2x + 6| + 12 = 20 \\ -12 \quad -12 \\ \hline |2x + 6| = 8 \end{array}$$

Now solve these for boundry points

$$\begin{array}{r} 2x + 6 = 8 \\ -6 \quad -6 \\ \hline 2x = 2 \\ x = 1 \end{array} \quad \text{and} \quad \begin{array}{r} 2x + 6 = -8 \\ -6 \quad -6 \\ \hline 2x = -14 \\ x = -7 \end{array}$$

$$\{ 1, -7 \}$$



17. Absolute Value Equation

$$\begin{array}{r} |k + 3| - 8 = -6 \quad \{-1, -5\} \\ \quad \quad \quad + 8 \quad + 8 \\ \hline \end{array}$$

$$|k + 3| = 2$$

Now solve these two to get the answers

$$\begin{array}{r} k + 3 = 2 \\ -3 \quad -3 \\ \hline k = -1 \end{array} \quad \text{And} \quad \begin{array}{r} k + 3 = -2 \\ -3 \quad -3 \\ \hline k = -5 \end{array}$$

18. System W/P

Nora and Ryan are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Nora sold 12 small boxes of oranges and 6 large boxes of oranges for a total of \$204. Ryan sold 4 small boxes of oranges and 12 large boxes of oranges for a total of \$228. What is the cost each of one small box of oranges and one large box of oranges?

small box of oranges: \$9, large box of oranges: \$16

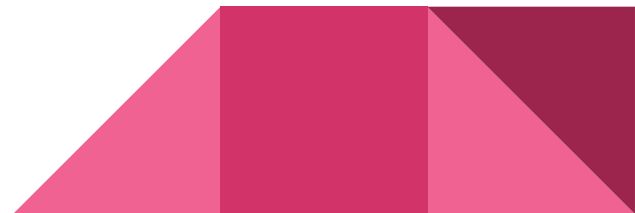
19. Solve the system:

$$4x - y = 7$$
$$x = y - 2$$

20. What could be the first step to solve the system?

$$2x + 6y = 9$$

$$2x - 4y = 12$$



21. Simplify: $(4x^2y^5)(-5xy^3)$

22. Simplify: $(4x^2y^5)^2$

23. Simplify: $(x + 6)(3x - 13)$



24. Factor completely: $5x^3 - 5x$

25. Solve by factoring: $x^2 - 20x + 64 = 0$

26. Radicals $2\sqrt{50} - 3\sqrt{75} + \sqrt{25}$

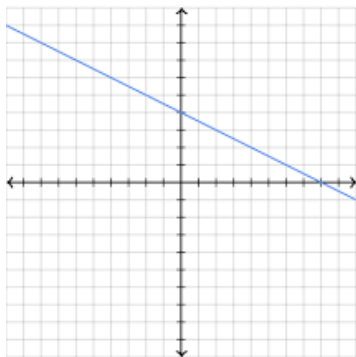
27. **Functions:** In the table below, Which function rule relates the values of the input variable x to the values of the output variable y . (Hint: find m and b , then put equation in $y=mx+b$ form)

0	-4
2	0
4	4
6	8
8	12
10	16
12	20

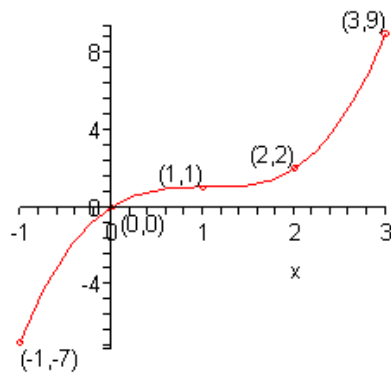
Graphs of functions (Vertical line test)

Which ONE is NOT a function

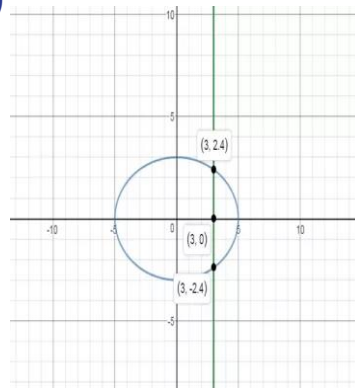
a)



b)



c)



Rational expressions:

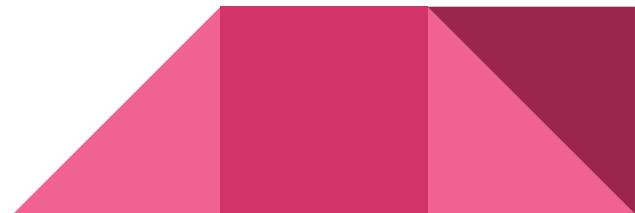
Simplify, Write answer with only positive exponents

$$\frac{24a^2b^3c^{-4}}{18a^{-2}b^5c}$$



Graphs of horizontal & vertical lines

- What does the graph of $x = 3$ look like? Horizontal or Vertical?
- What does the graph of $y = 3$ look like? Horizontal or Vertical?



Quadratic Equations: Non standard form

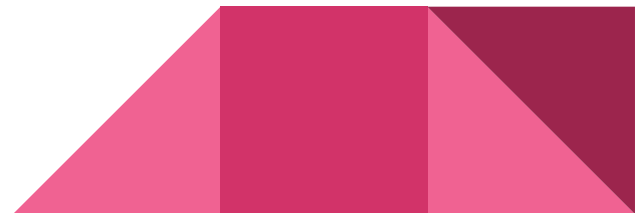
$$\begin{array}{r} 4b^2 + 10b + 12 = \cancel{2b^2} \\ -2b^2 \qquad \qquad \qquad -\cancel{2b^2} \\ \hline 2b^2 + 10b + 12 = 0 \end{array}$$

Now use factoring to finish

a) Take out GCF "2"

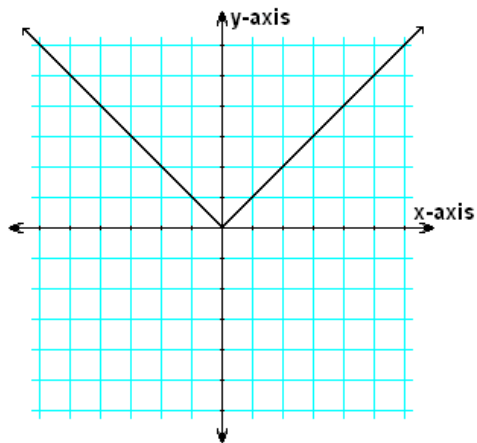
b) factor the trinomial to get your roots

$\{-3, -2\}$



Domain and Range

What is domain and range of image below?

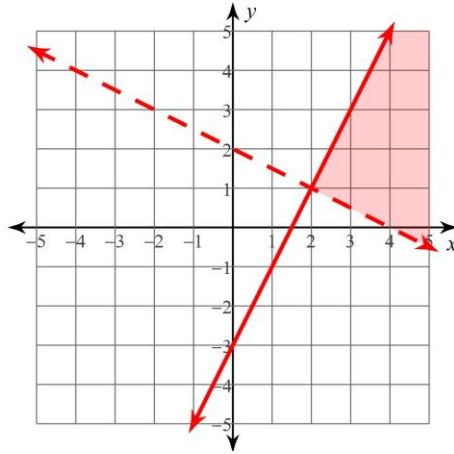
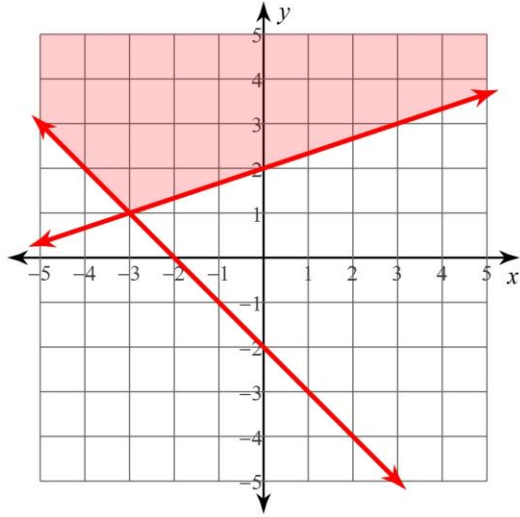


Domain is x values so it is all real numbers

Range is y values so they start at 0 and go up so $y \geq 0$

System of inequalities from graph:

Use graph to name "m" and "b" then match to given choices
remember $>$ is dotted and \geq is solid



Solve of one variable in term of another

- Solve for a

$$2(a - 3b) = 7b$$



Functions:

- Given $f(x) = 4x - 2$, $g(x) = 3x + 1$ and $h(x) = 2x$
- Find the value of $3f(-2) - h(-1) + g(0)$



Compound inequality

$$-26 < b + 8 < 11$$

$$\begin{array}{r} -8 \\ -8 \\ -8 \end{array}$$

$$-34 < b < 3$$

$$-34 < b < 3$$

