Algebra P4 "Year in Review" Name: Key

1. Combine like terms:

$3(d+4)-2(8-3d)$

$3d+12-16+6d$

$9d-4$

2. Calculate the slope between the points (2, 7) and (-3, 4)

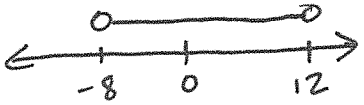
$m = \frac{7-4}{2--3} = \frac{3}{5}$

3. Solve and graph your answers on a number line: $|3x-6|<30$

$-30<3x-6<30$

$-24<3x<36$

$-8<x<12$



4. Find the equation of a line perpendicular to $y=\frac{2}{3}x-2$ and passing through the point (6, 2).

$m_{old}=\frac{2}{3}$ $m_{new}=-\frac{3}{2}$

$y-2=-\frac{3}{2}(x-6)$

or

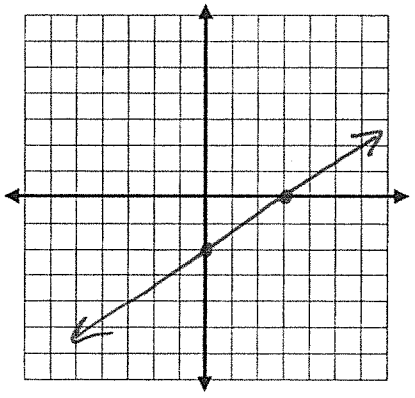
$y=-\frac{3}{2}x+11$

5. Find the x and y intercepts of the equation 2x – 3y = 6, then graph.

$2(0)-3y=6 \rightarrow y=-2$

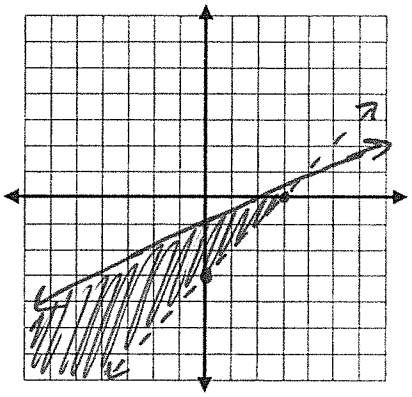
$2x-3(0)=6 \rightarrow x=3$

$(0,-2)$ & $(3,0)$



6. Graph:

$\begin{cases} x-y<3 \\ y\le\frac{1}{2}x-1 \end{cases}$ $\rightarrow y>x-3$



7. Simplify: $(-6a^7)(a)(2a^4)$

$-12a^{12}$

8. Find the y-intercept of each equation:

a) $4x-y=5$

$4(0)-y=5$

$y=-5$ $(0,-5)$

b) $y=3x^2-2x+30$

$y=3(0)^2-2(0)+30$

$y=30$

$(0,30)$

9. Find the x-intercepts:

$y=3x^2-16x-12$

$0=3x^2-16x-12$

$0=(3x+2)(x-6)$

$3x+2=0$ $x-6=0$

$x=-2/3$ $x=6$

$(-2/3,0)$ and $(6,0)$

10. Circle all the problems below that have no solution.

I. $|x-5|<-10$

II. $|x-5|>-10$

III. $|x-5|=-10$

IV. $|x-5|=10$

11. Simplify: $\dfrac{x^2y^{-4}}{4x^{-3}y^{10}}$

$= \dfrac{x^2x^3}{4y^4y^{10}}$

$= \dfrac{x^5}{4y^{14}}$

12. Find the vertex:

$h=-16t^2+32t+3$

$t=\dfrac{-b}{2a}=\dfrac{-32}{2(-16)}=1$

$h=-16(1)^2+32(1)+3$

$h=-16+32+3=19$

vertex: $(1,19)$

13. Describe the transformations:

$y=-2(x-4)^2$

right 4

stretch ×2

reflection (upside-down)

14. Solve using any substitution:

$\begin{cases} x-4y=-5 \\ x=2y-4 \end{cases}$

$(2y-4)-4y=-5$

$-2y=-1$

$y=1/2 \quad (-3, 1/2)$

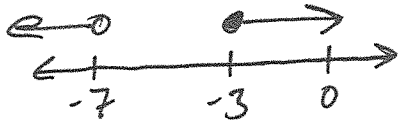
$x=2(\frac{1}{2})-4=-3$

15. Solve and graph:

$-2x-5>9$ *or* $4x\geq -12$

$-2x>14 \qquad x\geq -3$

$x<-7$



16. Factor:

$9x^2-25$

$(3x+5)(3x-5)$

17. Multiply:

$(3x-1)^2$

$(3x-1)(3x-1)$

$=9x^2-3x-3x+1$

$=9x^2-6x+1$

18. Find the x-intercepts.

$y=2x(4x-1)$

$0=2x(4x-1)$

$2x=0 \qquad 4x-1=0$

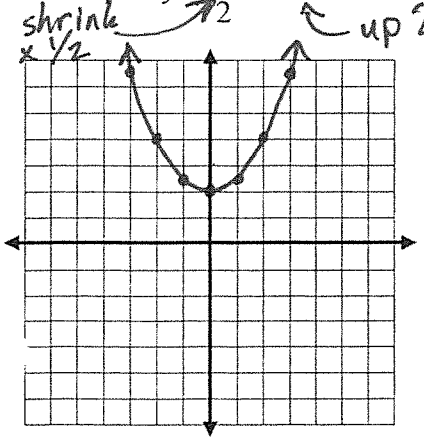
$x=0 \qquad x=1/4$

$(0,0)$ and $(1/4,0)$

19. Graph: $y=\dfrac{1}{2}x^2+2$

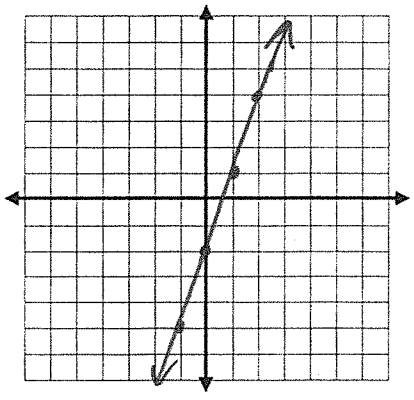
shrink ×1/2

up 2



20. Graph: $3x-y=2$

$y=3x-2$



21. Subtract:

$(3x-1)-(x^2+4x-5)$

$3x-1-x^2-4x+5$

$=-x^2-x+4$