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HOMEWORK Help!

QR

Hint: Use $y=mx+b$

remember m is slope $= \frac{y_2-y_1}{x_2-x_1}$ and b is the y-intercept.

EX

10. $f(1)=2 \quad f(5)=7$

(1,2) (5,7) use $y=mx+b$. Find your slope and then pick 1 point.

$\boxed{f(x)=\frac{5}{4}x+\frac{3}{4}}$

23. $f(x)=3(x-1)^2+5$

Hint: $f(x)=a(x-h)^2+k$ with the vertex at (h,k) and the axis of symmetry at $x=h$.

29. $f(x)=8x-x^2+3$

Hint: Find the vertex form by completing the square.

$f(x)=(-x^2+8x)+3$

$=-(x^2-8x+\_\_)+3-(-1)(\_\_)$

$\frac{-8}{2}=-4 \quad (-4)^2=16$

$f(x)=-(x^2-8x+16)+3+16$

$f(x)=-(x-4)^2+19$

vertex: (4, 19) axis of symmetry: $x=4$

33,38 Find the vertex form by completing the square. Then use what you know about shifting the graph $y=x^2$.

40. use $f(x)=a(x-h)^2+k$

We know from the problem that our vertex is (2,-7) and we have a point at (0,5).

let's plug in what we know.

$y=a(x-h)^2+k$

$5=a(0-2)^2+(-7)$

$5=a(-2)^2-7$

$5=4a-7$

$+7 \quad +7$

$\frac{12}{4}=\frac{4a}{4}$

$a=3$

$\boxed{f(x)=3(x-2)^2-7}$

61. Use the equation $s(t) = -gt^2 + v_0 t + h$. g is the force of gravity. When the units are feet, use 16. When the units are meters use 4.9. v_0 is the initial velocity and h_0 is the initial height. The equation $s(t)$ models the height.

a) Use the information from the problem with the above equation to write your quadratic equation:

$$s(t) = -16t^2 + 92t + 83$$

Find the maximum (vertex)

b) When is the height zero? $(s(t) = 0)$

c) The velocity can be found with the equation $v(t) = -32t^2 + v_0$ where v_0 is the initial velocity. So the equation is $v(t) = -32t^2 + 92$.
Use your time in "b" to determine the velocity when the ball hits the ground.