A41 Practice Problems 1 Name:

1. For each of the following equations, state the parent equation and then sketch its graph. Include the locator point and axes intercept(s), if any.

a) $y=\frac{1}{4}\cdot 2^{x}-1$

b) $y=-\frac{1}{3}(x+4)^{2}+7$

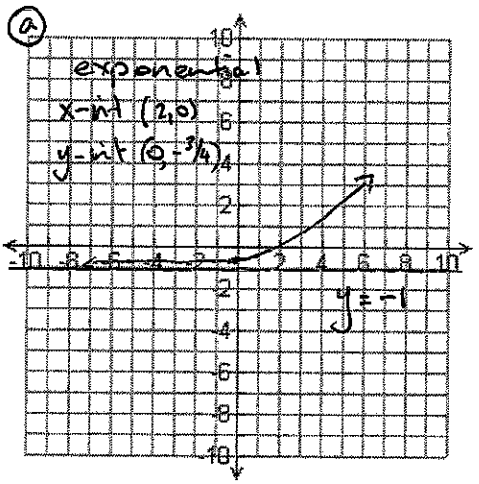
c) $y=3|x-5|$

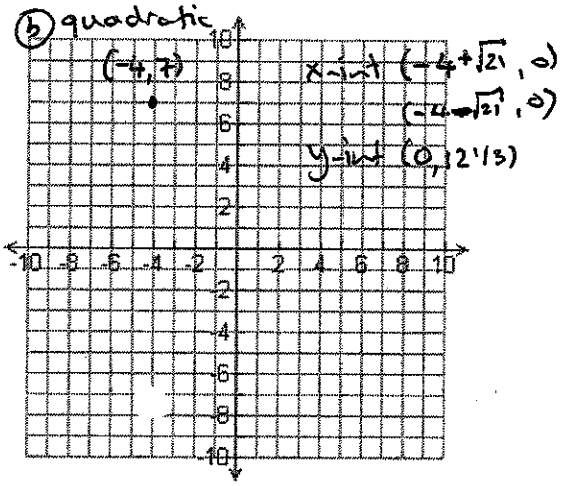
d) $y=\frac{1}{x+1}-5$

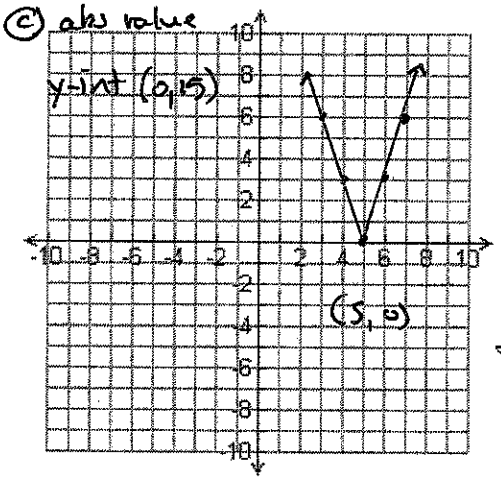
e) $y=-(x-2)^{3}+1$

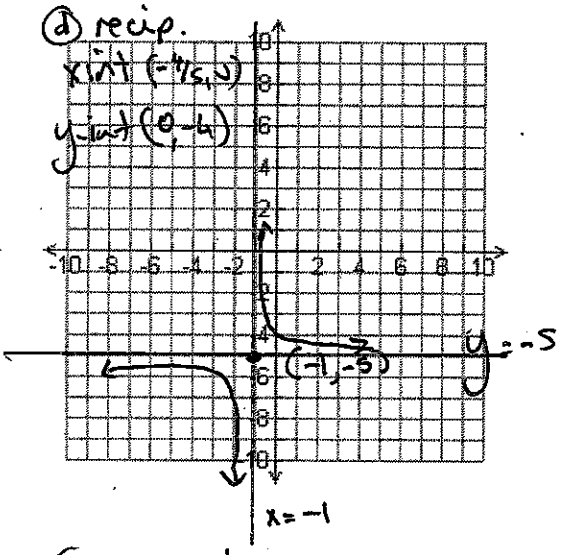
f) $y=2(x-1)+3$

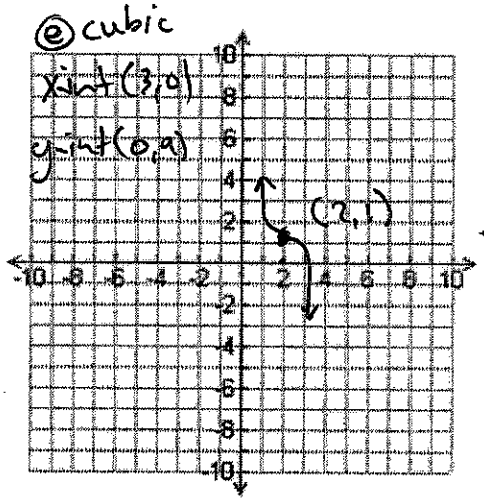
g) $y=-3\sqrt{x+2}+5$

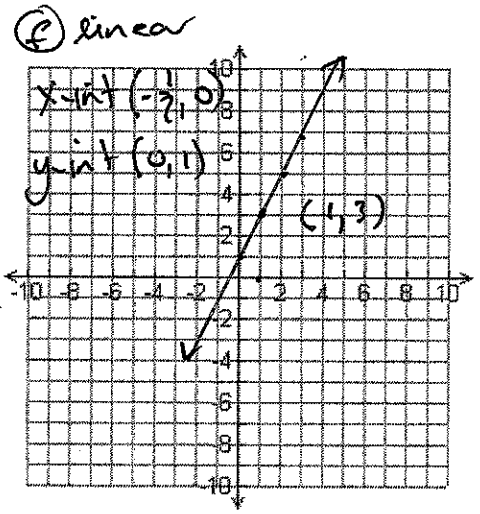


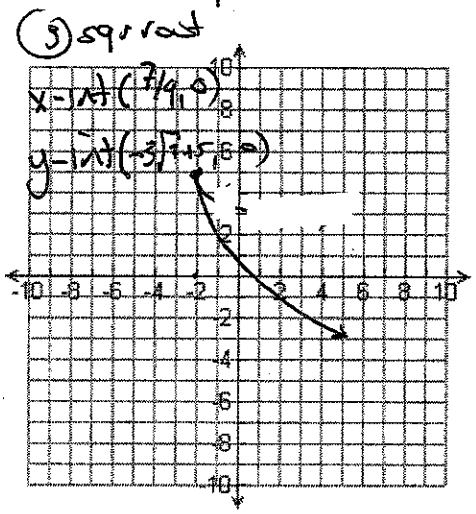












Problems: Converting

1. Change each function into the form specified. Check all your answers on Desmos by graphing both forms.

a. $f(x) = x^2 - 4x - 96$ into factored form.

$= (x-12)(x+8)$

b. $f(x) = 4x^2 - 4x - 3$ into factored form.

$= (2x-3)(2x+1)$

c. $f(x) = 3(x-4)(x+2)$ into standard form.

Hint: First do $(x-4)(x+2)$ then use the 3.

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

$= 3x^2-6x-24$

d. $f(x) = -2(x+5)^2 + 6$ into standard form.

Hint: First do $(x+5)^2$, then use the –2, then the 6.

$= -2(x^2+10x+25)+6$

$= -2x^2-10x-44$

e. $f(x) = 2x^2 + 16x + 28$ into vertex form.

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

f. $f(x) = (x+3)(x-5)$ into vertex form.

$= (x-1)^2 - 16$

g. $f(x) = (x-1)^2 - 1$ into factored form.

Hint: Distribute, then simplify, then factor.

$= x(x-2)$

h. $f(x) = 3(x-4)(x+2)$ into vertex form.

$= 3(x-1)^2 - 27$