

AA1 Practice #2- Transformations

Name:

Answer in your notebook when needed

1. Given the function: $f(x) = 2\sqrt{x-3} - 4$

a. Name and write the equation of the parent graph

sqr. root $y = \sqrt{x}$

b. State the locator point $(3, -4)$

c. Find the x and y intercepts, if any

x-int $(7, 0)$ ~~y-int $(0, 2\sqrt{3} - 4)$~~ Non Real answer

d. Describe the Domain and Range $D: x \in \mathbb{R} \{3 \leq x < \infty\}$ $[3, \infty)$

$R: y \in \mathbb{R} \{-4 \leq y < \infty\}$ $[-4, \infty)$

2. For each of the quadratic equations below, convert to the indicated form.

a) $f(x) = -2(x+4)^2 + 7$ to standard form

$$= -2x^2 - 16x - 25$$

b) ~~$g(x)$~~ $h(x) = x^2 + 6x - 1$ to vertex form

$$= (x+3)^2 - 10$$

c) $m(x) = x^2 - 7x - 8$ to factored form

$$= (x-8)(x+1)$$

d) $h(x) = 6x^2 + 5x - 6$ to factored form

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

3. For each of the descriptions below, write a function/relation that represents it. Sketch each of them in your notebook.

a. A linear function with a slope of 0.5 and through the point $(-2, 5)$

$$f(x) = \frac{1}{2}(x+2) + 5$$

b. A quadratic function with the vertex at $(-3, 5)$ and that goes through $(-2, 3)$

$$b(x) = (x+3)^2 + 5$$

c. A reciprocal function with asymptotes $y = 3$, $x = 4$ and that passes through $(2, 4)$

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

d. A square root function with a locator point at $(-2, 3)$ that passes through $(2, 4)$.

$$d(x) = \frac{1}{2}\sqrt{x+2} + 3$$

e. A **quadratic function** with x-intercepts at $x = 4$ and $x = -3$ & vertex with y-coordinate $-\frac{49}{8}$.

$$e(x) = \frac{49}{96} (x-4)(x+3)$$

f. A **cubic function** with inflection point at $(0, -4)$ and that passes through $(-1, -7)$.

$$f(x) = 3 \cdot x^3 - 4$$

g. A **circle** with center $(2, -3)$ and radius 3

$$(x-2)^2 + (y+3)^2 = 9$$

h. A **sleeping parabola** with vertex at $(1, -5)$ and passes through $(2, -2)$

$$h(x) = \pm 3 \cdot \sqrt{x-1} - 5$$

i. An **absolute value function** with vertex at $(1, 3)$ and passes through $(-2, 9)$

$$i(x) = 2 \cdot |x-1| + 3$$

j. An **exponential function** (base 2) with asymptote $y = -3$ and y intercept $(0, 1)$

$$j(x) = 2 \cdot 2^x - 3$$

4. Write equations for the following graphs. Do not forget to find the correct value of "a". Show work

