Math 2
Unit 3 Quiz Review

Name: Key

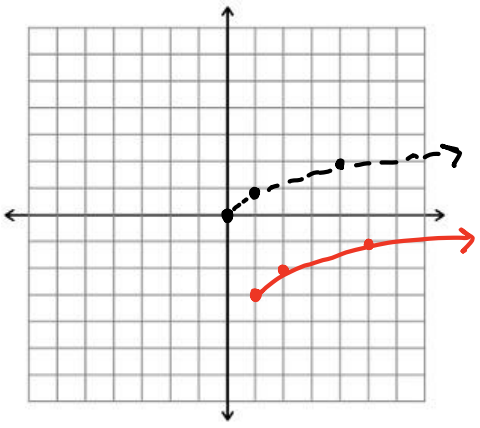
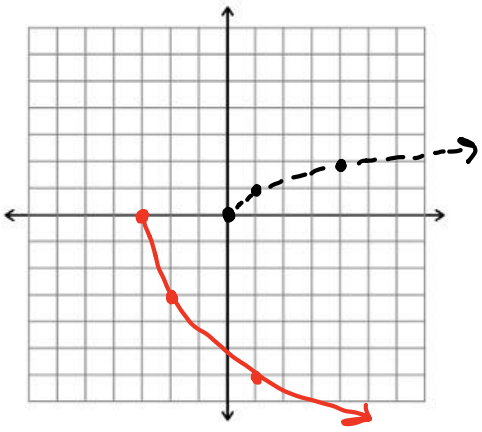
Rewrite the following using radical notation and simplify if possible:

1)	$41^{\frac{5}{8}}$ $\sqrt[8]{41^5}$	2)	$49^{\frac{1}{2}}$ $\sqrt{49}$ 7	3)	$4^{\frac{3}{2}}$ $\sqrt{4^3}$ $\sqrt{64}$ 8
4)	$32^{\frac{1}{4}}$ $\sqrt[4]{32}$	5)	$x^{\frac{3}{5}}$ $\sqrt[5]{x^3}$	6)	$(-64)^{\frac{2}{3}}$ $\sqrt[3]{(-64)^2}$

Rewrite the following using rational exponent notation:

7)	$\sqrt{19}$ $19^{1/2}$	8)	$(\sqrt[4]{8})^3$ $8^{3/4}$	9)	$(\sqrt[3]{-18})^5$ $(-18)^{5/3}$

Graph the following square root functions and then state the domain and range of each:

10)	$y = \sqrt{x-1} - 3$ 	11)	$y = -3\sqrt{x+3}$ 
	Domain: $x \geq 1$ Range: $y \geq -3$		Domain: $x \geq -3$ Range: $y \leq 0$

Solve the following radical / rational exponent equations and check for extraneous solutions:

12)	$\sqrt{x+3}+1=8$ x = 46	13)	$\sqrt{12-x}=x$ x = -4 (x) x = 3 (✓)	14)	$4+\sqrt[3]{3x-3}=1$ x = -8
15)	$\sqrt{4x+1}=\sqrt{x+7}$ x = 2	16)	$\sqrt{x+9}=\sqrt{2x-1}$ x = 10	17)	$(x+1)^{\frac{4}{3}}-7=9$ x = 7

Solve the following applications:

18)	Pilots use the function D(A) = $3.56\sqrt{A}$ to approximate the distance D in kilometers to the horizon from the altitude A in meters. What is the approximate distance to the horizon observed by a pilot flying at an altitude of 8,000 m? D(A) ≈ 318.42 m
19)	The formula for the velocity of an object dropped at a specific height can be represented by the equation: $V=\sqrt{2gh}$ where V is the velocity in meters per second, g is the acceleration due to gravity and h is the height in meters at which the object was dropped. If an object has a velocity of 50 meters per second when it hits the ground and the acceleration due to gravity is 10 m/s^2 then what is the height at which the object was dropped? h = 125 m
20)	The function $d=\sqrt{2h}$ can be used to estimate the distance (in miles) to the horizon d from a given height (in feet) h. At what height would you be if you spotted a boat and the horizon that was 10 miles away? h = 50 ft.