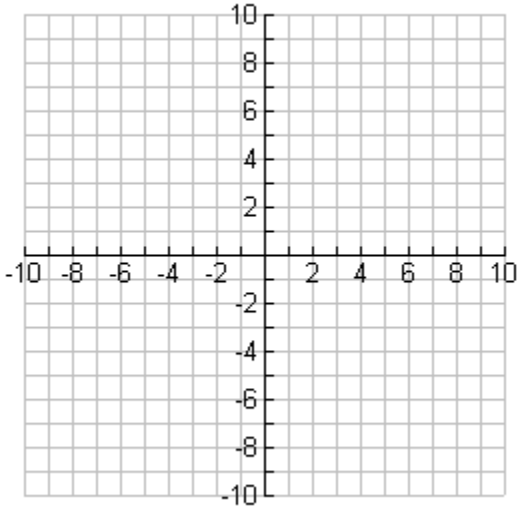
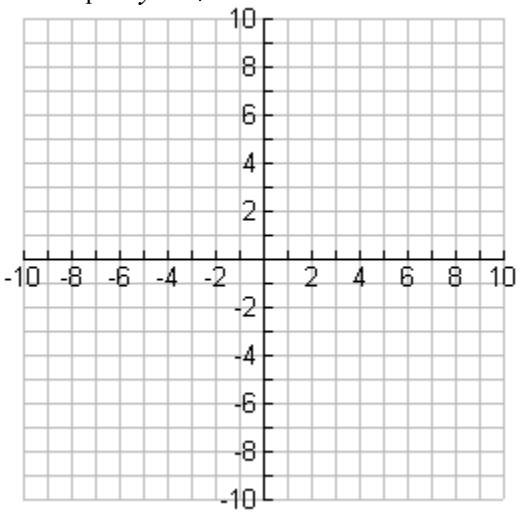
Algebra II **Non-Calculator** Name: _____

REVIEW 6.1-6.6 Date: _____ Block: _____

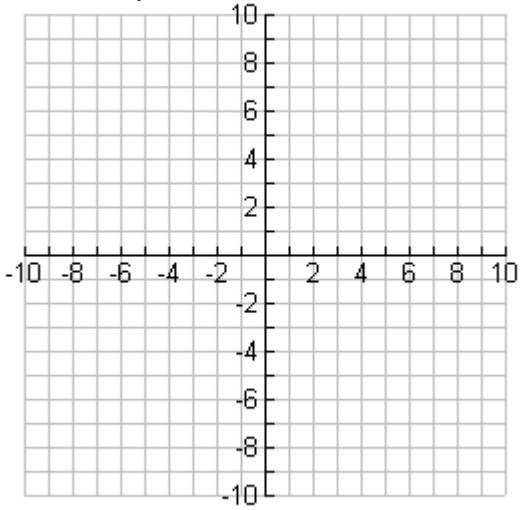
1. Graph: $y = \sqrt{x}$



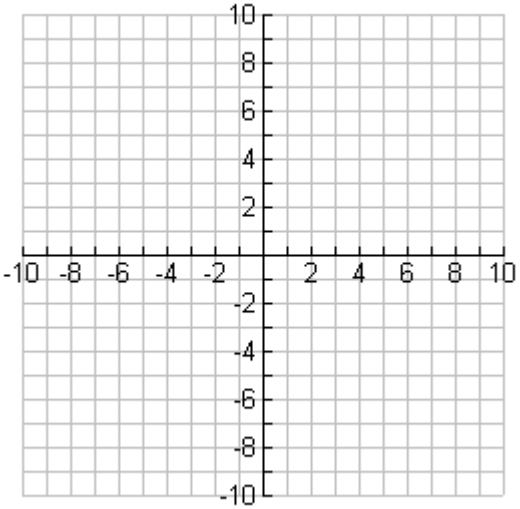
2. Graph: $y = \sqrt[3]{x}$



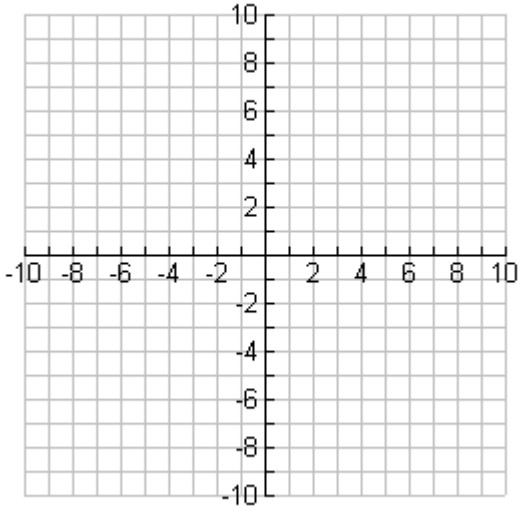
3. Graph: $y = 3\sqrt{x}$



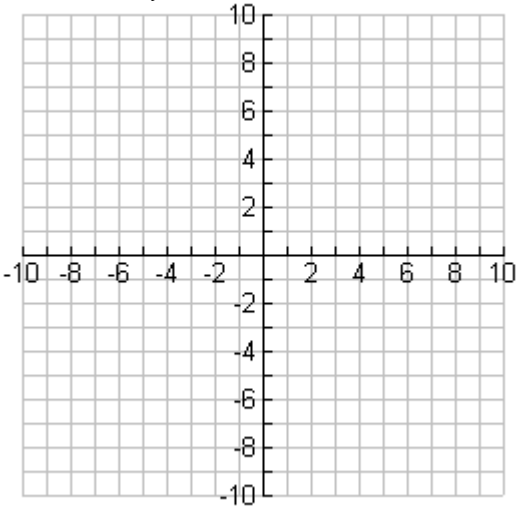
4. Graph: $y = 4\sqrt[3]{x}$



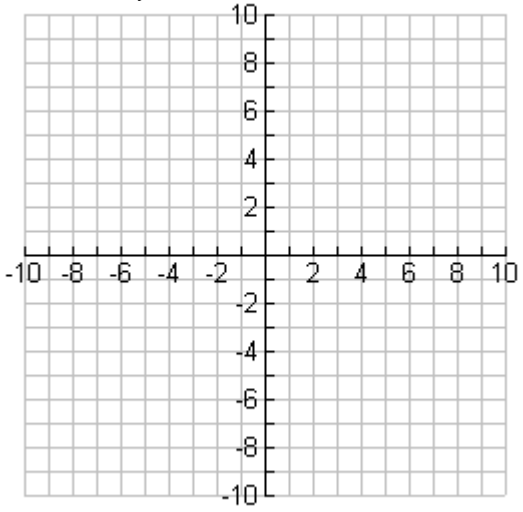
5. Graph: $y = 3\sqrt{x-2}$



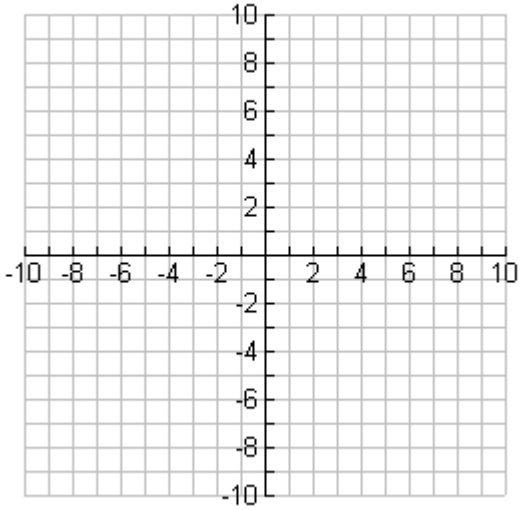
6. Graph: $y = 4\sqrt[3]{x-2}$



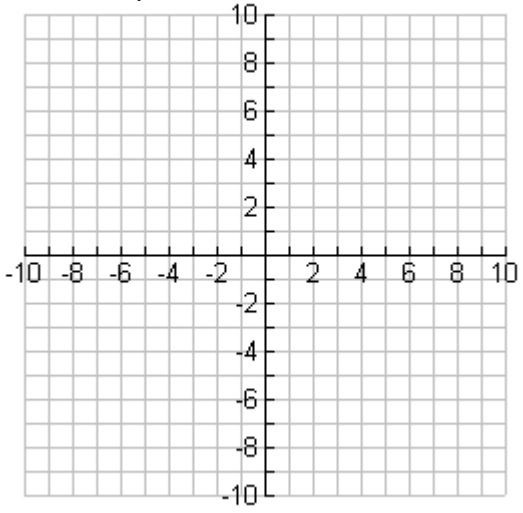
7. Graph: $y = 3\sqrt{x+2}+1$



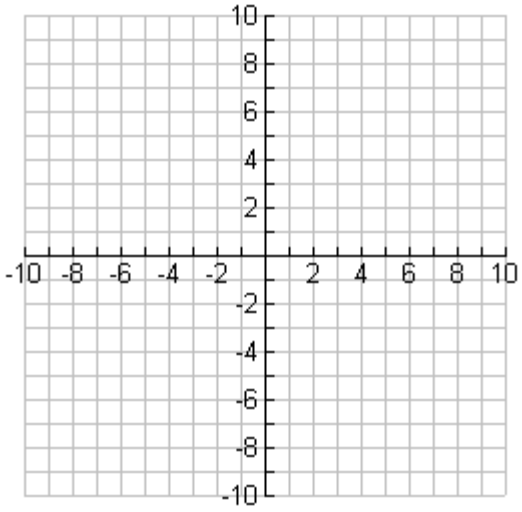
8. Graph: $y = 4\sqrt[3]{x+2}+1$



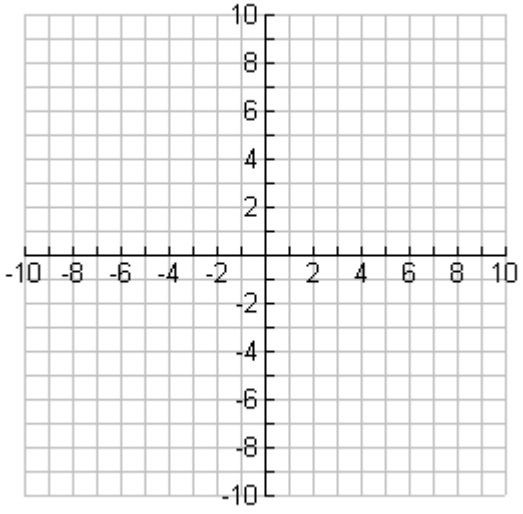
9. Graph: $y = -3\sqrt{x}$



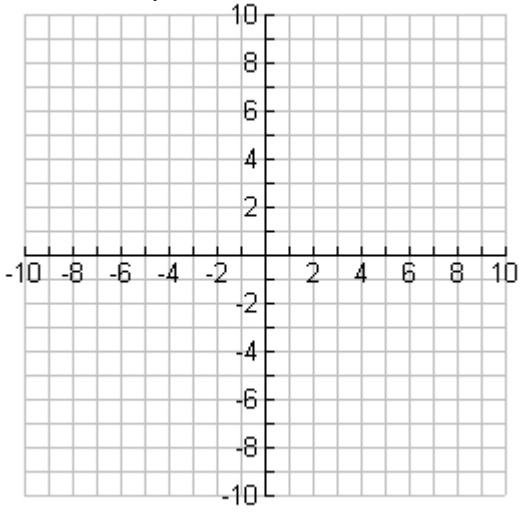
10. Graph: $y = -4\sqrt[3]{x}$



11. Graph: $y = -3\sqrt{x-4}-2$

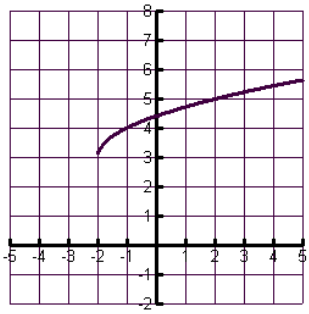
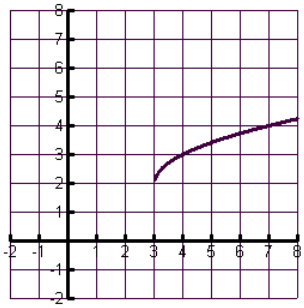
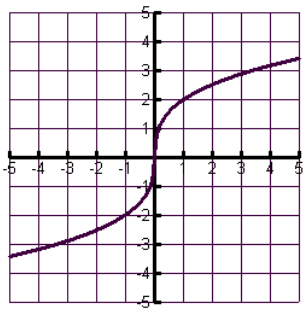
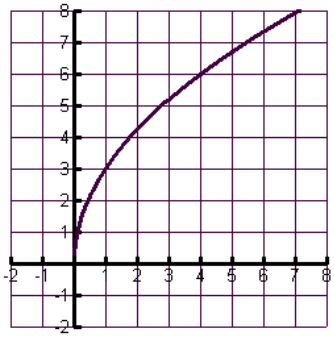
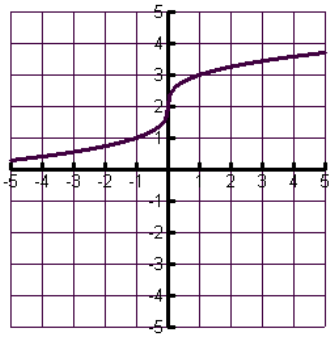


12. Graph: $y = -4\sqrt[3]{x-1}-2$



13.	Rewrite the expression in radical notation. a.) $5^{\frac{3}{4}}$ b.) $3^{\frac{1}{5}}$ c.) $7^{\frac{2}{3}}$ d.) $8^{\frac{5}{4}}$
14.	Rewrite the expression in rational exponent notation. a.) $\sqrt[3]{11}$ b.) $\left(\sqrt[5]{12}\right)^2$ c.) $\left(\sqrt[4]{8}\right)^3$ d.) $\sqrt{6}$
15.	Simplify the expression. a.) $\sqrt[3]{9}\cdot\sqrt[3]{3}$ b.) $\frac{\sqrt[4]{32}}{\sqrt[4]{2}}$ c.) $5^{\frac{2}{3}}\cdot 3^{\frac{2}{3}}$ d.) $3^{\frac{1}{3}}\cdot 9^{\frac{2}{3}}$
16.	Simplify the expression. a.) $\sqrt{32}\bullet\sqrt{2}$ b.) $\sqrt[3]{25}\bullet\sqrt[3]{-5}$ c.) $2^{\frac{1}{3}}\cdot 2^{\frac{1}{4}}$ d.) $\sqrt[3]{40}$
17.	Use the properties of rational exponents to simplify: a.) $3^{\frac{1}{4}}\bullet 3^{\frac{1}{2}}$ b.) $5^{\frac{1}{4}}\bullet 3^{\frac{1}{4}}$ c.) $5^{\frac{3}{4}}\bullet 5^{\frac{1}{3}}$ d.) $7^{\frac{1}{2}}\bullet 2^{\frac{1}{2}}$
18.	Use the properties of rational exponents to simplify: a.) $\left(3^{\frac{1}{3}}\bullet 2^{\frac{1}{3}}\right)^2$ b.) $\left(4^3\bullet 2^3\right)^{-\frac{1}{3}}$ c.) $\frac{7}{7^{\frac{2}{3}}}$ d.) $\left(\frac{6^{\frac{1}{4}}}{2^{\frac{1}{4}}}\right)^3$
19.	Solve the equation $\sqrt{4x+1}=\sqrt{x+10}$
20.	Solve the equation $\sqrt[3]{8x}-3=-7$
21.	Solve the equation $\sqrt[3]{x-16}=2$

22.	Solve the equation $\sqrt{9x}+11=14$
23.	Solve the equation $\sqrt{5x+1}=6$
24.	Solve $x^3=64$
25.	Solve $x^6+36=100$
26.	Solve $(x-5)^3=27$
27.	Solve $(x-3)^4=16$
28.	What is the value of $\sqrt[5]{32}$?
29.	What is the value of $\sqrt[3]{-125}$?
30.	What is the value of $\left(\sqrt[3]{8}\right)^{-2}$?
31.	What is the value of 128^0 ?

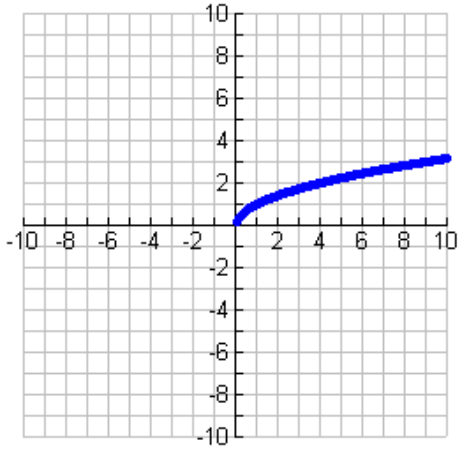
	Match the graph with its function.
	A.)  B.)  C.) 
	D.)  E.) 
32.	$f(x) = \sqrt[3]{x} + 2$
33.	$f(x) = 2\sqrt[3]{x}$
34.	$f(x) = \sqrt{x+2} + 3$
35.	$y = \sqrt{x-3} + 2$
36.	$f(x) = 3\sqrt{x}$

	Algebra 2 Test 6.1-6.6 Name: _____ Block: _____ **You may use your calculator on this portion of the test.**
37.	"Hang time" is the time you are suspended in the air during a jump. Your hang time *t* (in seconds) and jump height *h* (in feet) are related by the function $h = 4t^2$. If a basketball player jumps 3.1 feet high, what is the player's hang time?
38.	The volume of a baseball is 201.7 cubic centimeters. Find the radius of the ball. (Hint: Use the formula $V = \frac{4}{3}\pi r^3$ for the volume of a sphere.)
39.	A men's basketball has a surface area of about 1000 square inches. Find the radius of the basketball. (Hint: Use the formula $S = 4\pi r^2$ for the surface area of a sphere.)
40.	What is the domain of the function $y = \sqrt{x-1} + 3$?
41.	What is the range of the function $y = \sqrt{x-1} + 3$?
42.	Find the value of $\sqrt[5]{316}$.
43.	What is the domain of the function $y = \sqrt[3]{x-3}$?
44.	Solve the equation $2(x-2)^{\frac{3}{4}} = 54$
45.	Solve the equation $3 + (2-x)^{\frac{3}{2}} = 11$

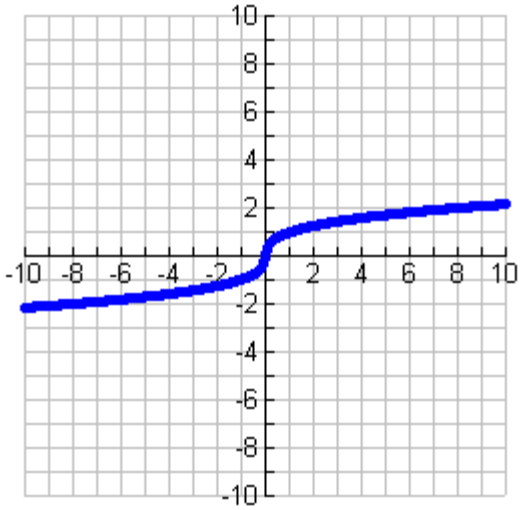
46.	Solve the equation $\sqrt{x+2}+4=x$
47.	Solve the equation $2=\left(3+x\right)^{\frac{1}{3}}$
48.	Solve the equation $\left(3x-2\right)^{\frac{1}{2}}-5=0$
49.	Solve the equation $\sqrt[4]{x-5}=3$
50.	Solve the equation $\sqrt[3]{x}=4$

Answer Key Review 6.1-6.6

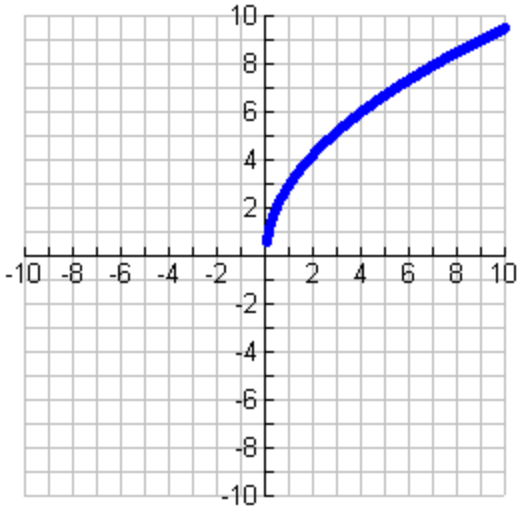
1. Graph: $y = \sqrt{x}$



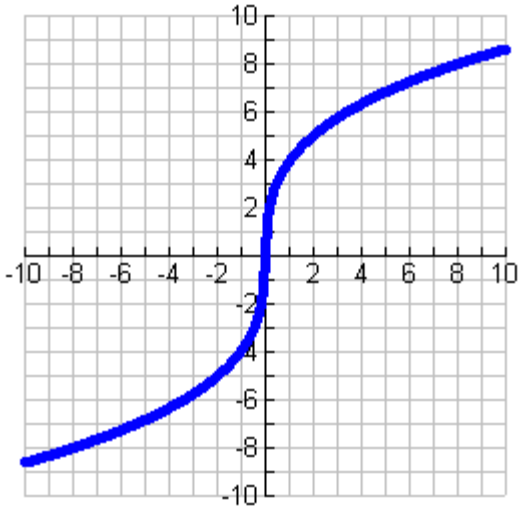
2. Graph: $y = \sqrt[3]{x}$



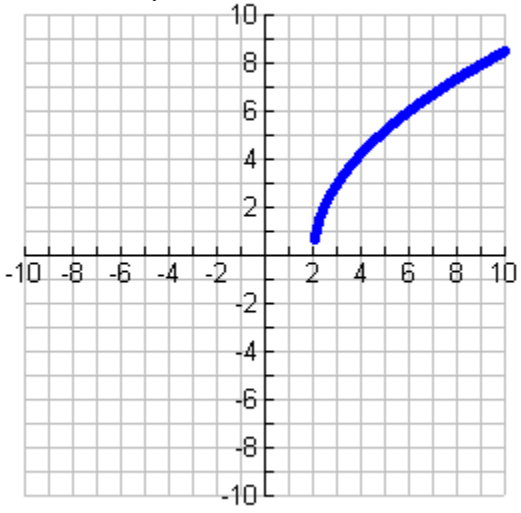
3. Graph: $y = 3\sqrt{x}$



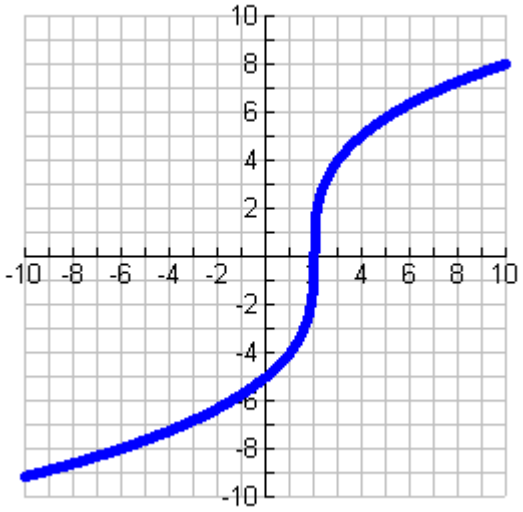
4. Graph: $y = 4\sqrt[3]{x}$



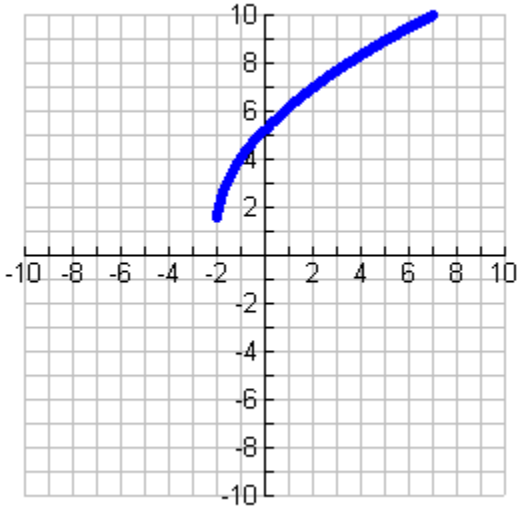
5. Graph: $y = 3\sqrt{x-2}$



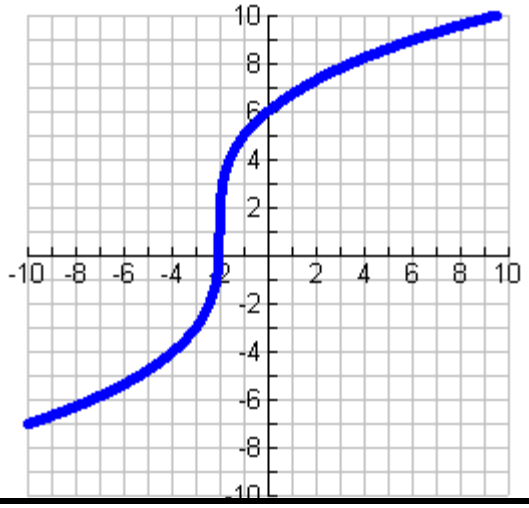
6. Graph: $y = 4\sqrt[3]{x-2}$



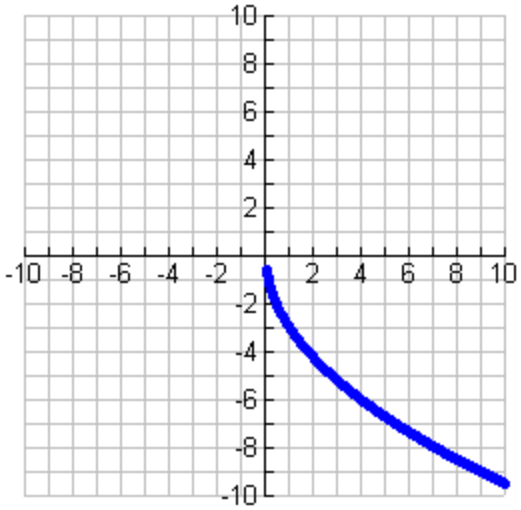
7. Graph: $y = 3\sqrt{x+2}+1$



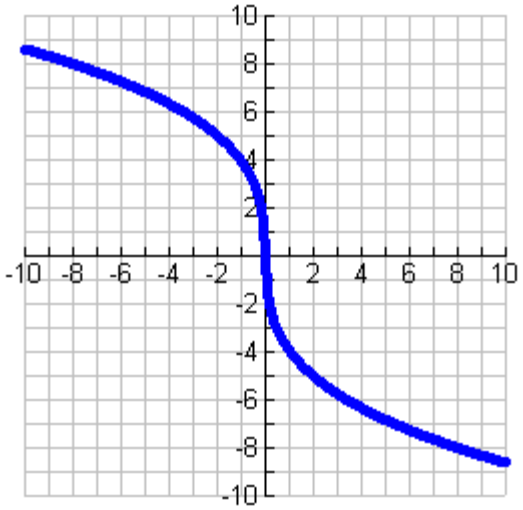
8. Graph: $y = 4\sqrt[3]{x+2}+1$



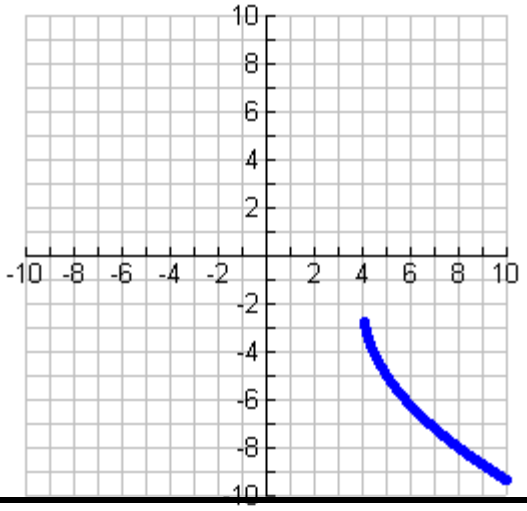
9. Graph: $y = -3\sqrt{x}$



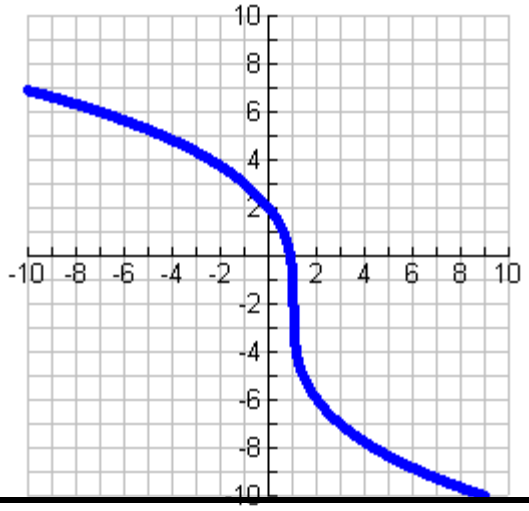
10. Graph: $y = -4\sqrt[3]{x}$



11. Graph: $y = -3\sqrt{x-4}-2$



12. Graph: $y = -4\sqrt[3]{x-1}-2$



13) a) $\left(\sqrt[4]{5}\right)^3$	b) $\sqrt[5]{3}$	c) $\left(\sqrt[3]{7}\right)^2$	d) $\left(\sqrt[4]{8}\right)^5$
13) a) $11^{\frac{1}{3}}$	b) $12^{\frac{2}{5}}$	c) $8^{\frac{3}{4}}$	d) $6^{\frac{1}{2}}$
15) a) 3	b) 2	c) $15^{\frac{2}{3}}$	d) $3^{\frac{5}{3}}$
16) a) 8	b) -5	c) $2^{\frac{7}{12}}$	d) $2\sqrt[3]{5}$
17) a) $3^{\frac{3}{4}}$	b) $15^{\frac{1}{4}}$	c) $5^{\frac{13}{12}}$	d) $14^{\frac{1}{2}}$
18) a) $6^{\frac{2}{3}}$	b) $\frac{1}{8}$	c) $7^{\frac{1}{3}}$	d) $3^{\frac{3}{4}}$
19) $x=3$	20) $x=-8$	21) $x=24$	22) $x=1$
23) $x=7$	24) $x=4$	25) $x=\pm 2$	26) $x=8$
27) $x=1,5$	28) 2	29) -5	30) $\frac{1}{4}$
31) 1	32) E	33) C	34) A
35) B	36) D	37) .88	38) 3.638
39) 8.921	40) $x\geq 1$	41) $y\geq 3$	42) 3.162
43) $\mathbb{R}$	44) $x=83$	45) $x=-2$	46) $x=7$
47) $x=5$	48) $x=9$	49) $x=86$	50) $x=64$