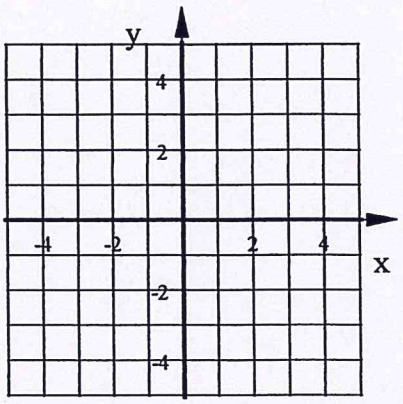
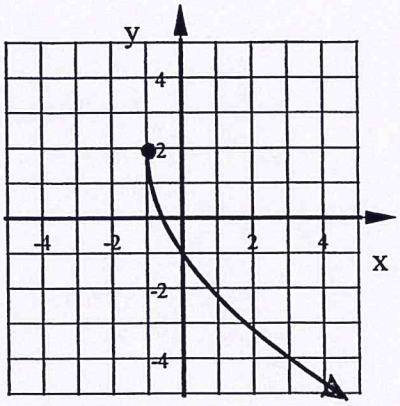
Bellwork Alg 2 Monday, January 7, 2019

1. Graph this square root function using three points.

$y = 2\sqrt{-(x-2)} - 3$



2. Write the equation of this square root function:



3. State the Domain and Range of this function: $y = -4\sqrt{-(x+7)} + 18$

4. Simplify. Use Absolute Value symbols where necessary. $\sqrt[4]{162w^{12}x^{27}y^{23}}$

5. Rationalize the denominator. Simplify your answer. Assume all variable are positive.

a) $\dfrac{21bc^5}{\sqrt[5]{9b^7c^{18}d}}$

b) $\dfrac{12}{3+\sqrt{5}}$

6. Solve each.

a) $\sqrt{x+1} + 5 = x$

b) $5(2x-1)^{\frac{2}{3}} + 9 = 29$

7. Simplify. Assume all variables are positive. Rationalize denominator of answers, if necessary.

a) $\sqrt[3]{22g^5h^7} \cdot \sqrt[3]{6gh^3} \cdot \sqrt[3]{10g^8}$

b) $\dfrac{\sqrt{135R^7P^{13}}}{\sqrt{48R^4P^{19}}}$

8. Simplify.

a) $6\sqrt{18} + 7\sqrt{75} - 3\sqrt{30}$

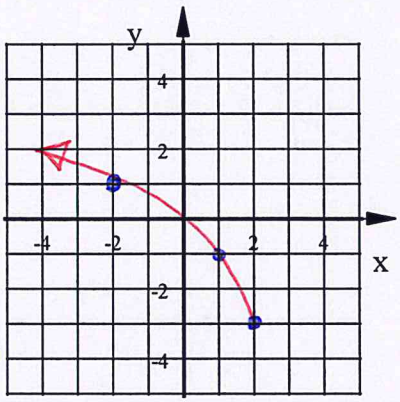
b) $(4-3\sqrt{7})(5+2\sqrt{7})$

Bellwork Alg 2 Monday, January 7, 2019 **Answers**

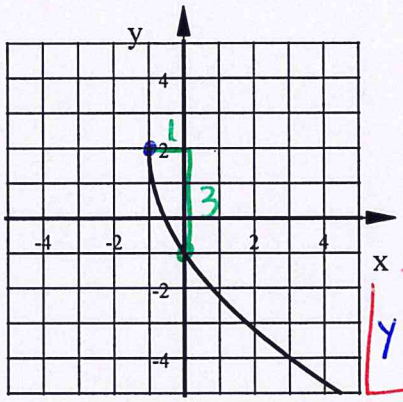
1. Graph this square root function using three points.

$y = 2\sqrt{-(x-2)} - 3$

2 Right
3 down
Backwards
2x Taller
STARTS AT (2,-3)



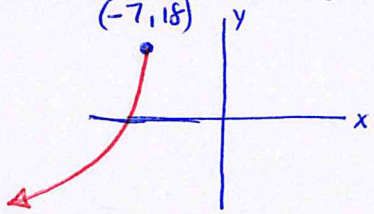
2. Write the equation of this square root function:



1 left
2 up
3 x Taller
upside down

$y = -3\sqrt{x+1} + 2$

3. State the Domain and Range of this function: $y = -4\sqrt{-(x+7)} + 18$



7 left 18 up Backwards & upside down

Domain: $(-\infty, -7]$

Range: $(-\infty, 18]$

4. Simplify. Use Absolute Value symbols where necessary. $\sqrt[4]{162w^{12}x^{27}y^{23}}$

$81 \cdot 2$

$2^4 = 16$
$3^4 = 81$
$4^4 = 256$

$3|w^3|x^6|y^5|\sqrt[4]{2x^3y^3}$

5. Rationalize the denominator. Simplify your answer. Assume all variable are positive.

a) $\dfrac{21bc^5}{\sqrt[5]{9b^7c^{18}d}} \cdot \dfrac{\sqrt[5]{3^3b^3c^2d^4}}{\sqrt[5]{3^3b^3c^2d^4}}$

$9 = 3^2$

$\sqrt[5]{3^5b^{10}c^{20}d^4}$

$= \dfrac{21bc^5\sqrt[5]{3^3b^3c^2d^4}}{3b^2c^4d} = \dfrac{7c\sqrt[5]{3^3b^3c^2d^4}}{bd}$

b) $\dfrac{12}{3+\sqrt{5}} \cdot \dfrac{3-\sqrt{5}}{3-\sqrt{5}} = \dfrac{12(3-\sqrt{5})}{9-5}$

$= \dfrac{12(3-\sqrt{5})}{4}$

$= 3(3-\sqrt{5})$ or $9-3\sqrt{5}$

6. Solve each.

a) $\sqrt{x+1} + 5 = x$
$\quad -5 \quad -5$

$(\sqrt{x+1})^2 = (x-5)^2$

$x+1 = x^2 - 10x + 25$
$-x \quad -1 \qquad -x \quad -1$

$0 = x^2 - 11x + 24$

$0 = (x-8)(x-3)$

24, -8, -3, -11

$x = \cancel{3}, 8$ $\quad x = 8$

b) $5(2x-1)^{\frac{2}{3}} + 9 = 29$
$\quad -9 \quad -9$

$\dfrac{5(2x-1)^{2/3}}{5} = \dfrac{20}{5}$

$[(2x-1)^{2/3}]^{3/2} = [4]^{3/2}$ → $(\sqrt{4})^3 = (\pm 2)^3 = \pm 8$

$2x-1 = \pm 8$

$2x = \begin{cases} 8+1 = 9 \\ -8+1 = -7 \end{cases}$

$x = 9/2, -7/2$

7. Simplify. Assume all variables are positive. Rationalize denominator of answers, if necessary.

a) $\sqrt[3]{22g^5h^7} \cdot \sqrt[3]{6gh^3} \cdot \sqrt[3]{10g^8}$

$2 \cdot 11 \quad 2 \cdot 3 \quad 2 \cdot 5$

$2^3 \cdot 165$

$= \sqrt[3]{2^3 \cdot 165 g^{14} h^{10}}$

$= 2g^4h^3\sqrt[3]{165g^2h}$

b) $\dfrac{\sqrt{135R^7P^{13}}}{\sqrt{48R^4P^{19}}} = \sqrt{\dfrac{135R^7P^{13}}{48R^4P^{19}}} = \sqrt{\dfrac{45R^3}{16P^6}}$

$= \dfrac{3R\sqrt{5R}}{4P^3}$

8. Simplify.

a) $6\sqrt{18} + 7\sqrt{75} - 3\sqrt{30}$

$= 6 \cdot \sqrt{9 \cdot 2} + 7\sqrt{25 \cdot 3} - 3\sqrt{30}$

$= 18\sqrt{2} + 35\sqrt{3} - 3\sqrt{30}$

b) $(4 - 3\sqrt{7})(5 + 2\sqrt{7})$

	4	$-3\sqrt{7}$
5	20	$-15\sqrt{7}$
$+2\sqrt{7}$	$+8\sqrt{7}$	$-6 \cdot 7 = -42$

$-22 - 7\sqrt{7}$