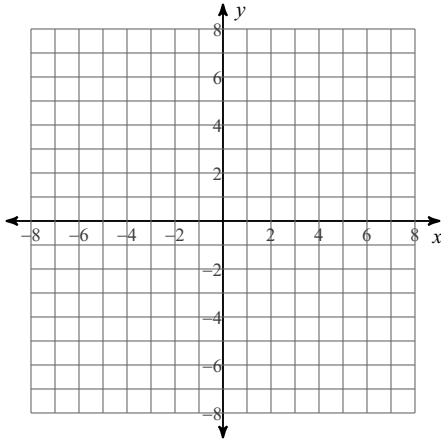


Radical Unit - Test Review

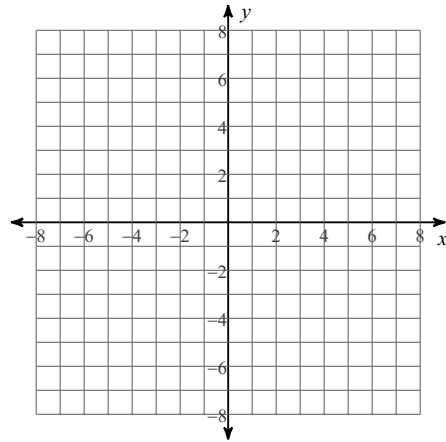
Date _____ Period _____

Sketch the Graph, then identify the Domain and Range of each.

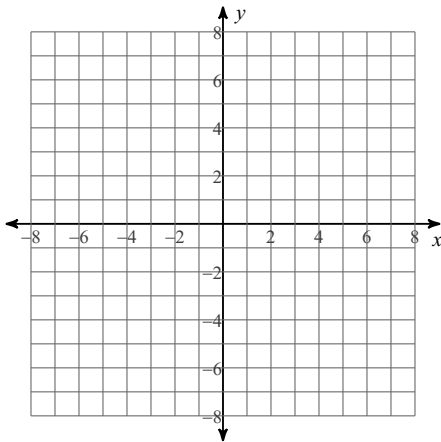
1) $y = \sqrt{x+6} - 2$



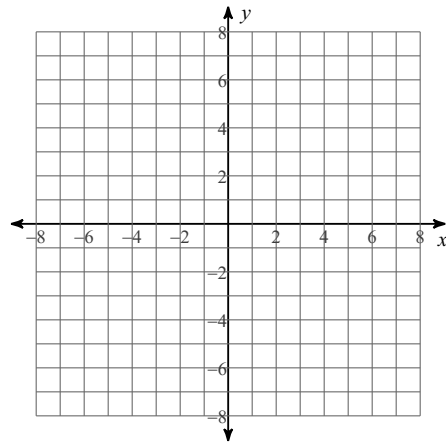
2) $y = (x+3)^3 - 2$



3) $y = -3\sqrt{x+4} + 4$



4) $y = \sqrt[3]{x+1} - 4$



Simplify.

5) $(-2q^3)^4 \cdot 2m^2 p^4 q^4$

6) $(-2xy^0z^3 \cdot -2xy^4z^3)^2$

Simplify. Your answer should contain only positive exponents.

7) $a^2b^{-1} \cdot (-ba^{-2})^4$

8) $-yx^2 \cdot (x^4y^3)^4$

9) $\frac{(-x^{-2}y^2)^2}{x^2y^{-4} \cdot -x^0y^2}$

10) $\frac{vu^4}{(-u^{-3}v^2 \cdot -v^2)^4}$

11) $\frac{x^{-3}y^0 \cdot yx^3}{(2x^4y^4)^{-3}}$

12) $\frac{(x^3)^2}{x^4y^0 \cdot 2yx^4}$

Write each expression in exponential form. Some WILL have negative exponents.

13) $(\sqrt[3]{2x})^5$

14) $\frac{1}{\sqrt[6]{2x^2}}$

Write each expression in radical form.

15) $(10a)^{\frac{7}{4}}$

16) $(6x)^{-\frac{3}{2}}$

Simplify.

17) $(49n^4)^{\frac{1}{2}}$

18) $(x^{12})^{-\frac{1}{4}}$

19) $(4n^4)^{\frac{3}{2}}$

20) $(8n^6)^{\frac{2}{3}}$

21) $-3\sqrt{3} + 3\sqrt{24} - 3\sqrt{12}$

22) $-3\sqrt{24} - 2\sqrt{6} - \sqrt{54}$

23) $\sqrt{21x} \cdot -6\sqrt{49x}$

24) $\sqrt[3]{30n^3} \cdot \sqrt[3]{150n^4}$

25) $-\sqrt{6}(4\sqrt{3} + 3)$

26) $(\sqrt{2} + 4\sqrt{7})(\sqrt{8} + 6\sqrt{7})$

27) $\frac{\sqrt{3}}{2\sqrt{4}}$

28) $\frac{5 - \sqrt{3}}{3\sqrt{5}}$

29) $\frac{2}{2 - 3\sqrt{7}}$

30) $\frac{\sqrt{3} + \sqrt{5}}{5 - \sqrt{3}}$

Solve each equation. Remember to check for extraneous solutions.

31) $4 = \sqrt{n+2}$

32) $18 = 6\sqrt{3x-6}$

33) $\sqrt{3n+6} = \sqrt{10-n}$

34) $\sqrt{20-x} = x$

35) $x - 9 = \sqrt{63 - 7x}$

36) $512 = x^{\frac{3}{2}}$

37) $6 = 2 \cdot (3n)^{\frac{1}{2}}$

38) $9 = 5 + (k + 22)^{\frac{1}{2}}$

39) A spherical water tank holds 8000 cubic feet of water. What is the diameter of the tank rounded to the nearest hundredth?

(Hint: $V = \frac{\pi}{6}d^3$)

40) Police can estimate the speed of a vehicle before the brakes are applied using the formula

$0.75d = \frac{s^2}{30.25}$. What was the approximate speed of a vehicle that left a skid mark measuring 120 feet? (Round your answer to the nearest hundredth.)

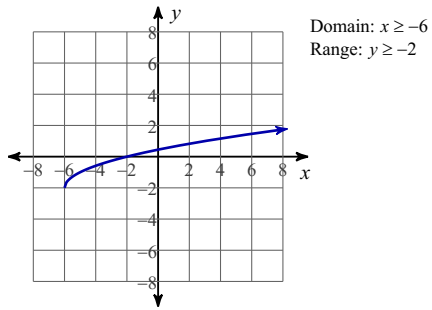
41) Jamie buys a square tablecloth. According to the package, the area of the cloth is 800 square inches. What is the length of a side of the tablecloth? Express your answer as a simplified radical.

42) If a ball is dropped on the ground from a height of h meters, then the velocity at which the ball hits the ground can be calculated by $V = \frac{9}{2}\sqrt{h}$ m/sec. If the velocity with which a ball reaches the ground is 36 m/s, from what height was the ball dropped?

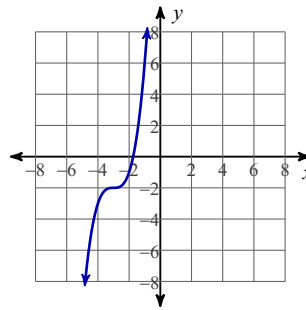
43) The time period (in seconds) of a simple pendulum of length l ft. is given by $T = \frac{4}{5}\sqrt{2l}$. If the time period was 8 seconds, what was the length of the pendulum?

Answers to Radical Unit - Test Review (ID: 1)

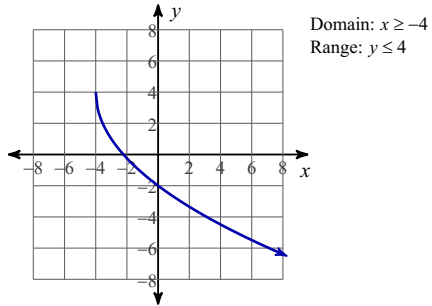
1)



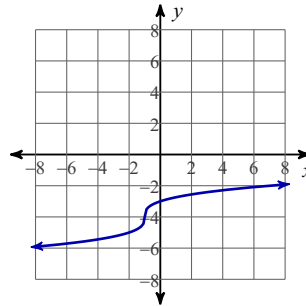
2)



3)



4)



5) $32q^{16}m^2p^4$

6) $16x^4z^{12}y^8$

7) $\frac{b^3}{a^6}$

8) $-y^{13}x^{18}$

9) $-\frac{y^6}{x^6}$

10) $\frac{u^{16}}{v^{15}}$

11) $8x^{12}y^{13}$

12) $\frac{1}{2x^2y}$

13) $(2x)^{\frac{5}{3}}$

14) $(2x^2)^{-\frac{1}{6}}$

15) $(\sqrt[4]{10a})^7$

16) $\frac{1}{(\sqrt{6x})^3}$

17) $7n^2$

18) $\frac{1}{x^3}$

19) $8n^6$

20) $4n^4$

21) $-9\sqrt{3} + 6\sqrt{6}$

22) $-11\sqrt{6}$

23) $-42x\sqrt{21}$

24) $5n^2\sqrt[3]{36n}$

25) $-12\sqrt{2} - 3\sqrt{6}$

26) $172 + 14\sqrt{14}$

27) $\frac{\sqrt{3}}{4}$

28) $\frac{5\sqrt{5} - \sqrt{15}}{15}$

29) $\frac{-4 - 6\sqrt{7}}{59}$

30) $\frac{5\sqrt{3} + 3 + 5\sqrt{5} + \sqrt{15}}{22}$

31) $\{14\}$

32) $\{5\}$

33) $\{1\}$

34) $\{4\}$

35) $\{9\}$

36) $\{64\}$

37) $\{3\}$

38) $\{-6\}$

39) 24.81 ft.

40) 52.18 mph.

41) $20\sqrt{2}$ inches

42) 64 meters

43) 50 ft.