

Review For Radicals Quiz

NAME: _____

<p>1. Simplify Nth Roots</p> <p>a) Convert: $x^{m/n} = \sqrt[n]{x^m}$</p> <p>b) Evaluate: $(-64)^{2/3} = \sqrt[3]{-64}^2 = (-4)^2 = 16$</p> <p>c) Simplify: $\sqrt[4]{32} = \sqrt[4]{16 \cdot 2} = 2\sqrt[4]{2}$</p> <p>d) Simplify with variables: $\frac{\sqrt[5]{-64a^5b^{10}c^7}}{\sqrt[5]{-32a^5b^{10}c^5} \sqrt[5]{2c^2}} = \frac{-2ab^2c \sqrt[5]{2c^2}}{-2ab^2c \sqrt[5]{2c^2}}$</p>	<p>2. Operations with Nth Roots</p> <p>a) Multiply/Divide: $\frac{\sqrt[4]{48}}{\sqrt[3]{9} \sqrt[3]{3}} = \frac{\sqrt[4]{48}}{\sqrt[3]{27}} = \frac{\sqrt[4]{16 \cdot 3}}{3} = \frac{2\sqrt[4]{3}}{3}$</p> <p>b) Add/Subtract: $2\sqrt[3]{128} + 5\sqrt[3]{16} = 2 \cdot 4\sqrt[3]{2} + 5 \cdot 2\sqrt[3]{2} = 8\sqrt[3]{2} + 10\sqrt[3]{2} = 18\sqrt[3]{2}$</p> <p>c) Rational Exponent Properties: $x^n \cdot x^m = x^{n+m}$, $(x^n)^m = x^{nm}$, $\frac{x^n}{x^m} = x^{n-m}$</p>
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3. Rationalize Nth Roots:

<p>a) Monomial Denominator: $\frac{10}{\sqrt[3]{5}} \cdot \frac{\sqrt[3]{5^2}}{\sqrt[3]{5^2}} = \frac{10\sqrt[3]{5^2}}{5} = 2\sqrt[3]{25}$</p>	<p>b) Binomial Denominator: $\frac{3}{(4-\sqrt{2})} \cdot \frac{(4+\sqrt{2})}{(4+\sqrt{2})} = \frac{3(4+\sqrt{2})}{16-2} = \frac{3(4+\sqrt{2})}{14}$</p>
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4. Solve Power Equations

a) Isolate the power.
 b) nth root both sides.
 c) Even roots need \pm .
 Odd roots do not need \pm .

$\begin{aligned} 2(x-3)^2 + 1 &= -23 \\ -1 & \quad -1 \\ \hline 2(x-3)^2 &= -24 \\ \frac{2}{2} & \\ (x-3)^2 &= -12 \\ x-3 &= \pm\sqrt{-12} \\ x-3 &= \pm\sqrt{-4 \cdot 3} \\ x-3 &= \pm 2i\sqrt{3} \\ x &= 3 \pm 2i\sqrt{3} \end{aligned}$	$\begin{aligned} 4x^3 - 5 &= -37 \\ +5 & \quad +5 \\ \hline 4x^3 &= -32 \\ \frac{4}{4} & \\ x^3 &= -8 \\ \sqrt[3]{x^3} &= \sqrt[3]{-8} \\ x &= -2 \end{aligned}$
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5. Solve Radical Equations

a) Isolate the radical.
 b) Raise both sides to the nth power.
 c) Check for extraneous solutions!

$$\begin{aligned} \sqrt[3]{x-2} + 7 &= 4 \\ -7 & \quad -7 \\ \hline \sqrt[3]{x-2} &= -3 \\ \sqrt[3]{x-2}^3 &= (-3)^3 \\ x-2 &= -27 \\ +2 & \quad +2 \\ \hline x &= -25 \checkmark \end{aligned}$$

	<p>not</p> <table border="1" style="border-collapse: collapse; font-size: small;"> <tr> <td style="padding: 2px;">Simplify</td> <td style="padding: 2px;">Solve</td> </tr> <tr> <td style="padding: 2px;">Even</td> <td style="padding: 2px;">Even</td> </tr> <tr> <td style="padding: 2px;">Pos</td> <td style="padding: 2px;">±</td> </tr> <tr> <td style="padding: 2px;">Non</td> <td style="padding: 2px;">Pos</td> </tr> <tr> <td style="padding: 2px;">Non</td> <td style="padding: 2px;">Non</td> </tr> </table>	Simplify	Solve	Even	Even	Pos	±	Non	Pos	Non	Non		
Simplify	Solve												
Even	Even												
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SECTION 1: Simplifying Nth Roots

Convert the radical form to exponential form and vice versa.

1. $x^{1/10} = \sqrt[10]{x}$	2. $x^{4/5} = \sqrt[5]{x^4}$	3. $x^{2/3} = \sqrt[3]{x^2}$
4. $\sqrt[8]{m} = m^{1/8}$	5. $\sqrt{x^5} = x^{5/2}$	6. $\sqrt[3]{ab^4} = (ab)^{4/3}$

Convert and evaluate.

7. $196^{1/2} = \sqrt{196}$ $= 14$	8. $81^{3/4} = \sqrt[4]{81^3}$ $= 3^3$ $= 27$	9. $(-64)^{2/3} = \sqrt[3]{-64^2}$ $= (-4)^2$ $= 16$
10. $32^{3/5} = \sqrt[5]{32^3}$ $= 2^3$ $= 8$	11. $\frac{1000^{-2/3}}{1} = \frac{1}{1000^{2/3}}$ $= \frac{1}{\sqrt[3]{1000^2}}$ $= \frac{1}{10^2}$ $= \frac{1}{100}$	12. $\left(\frac{49}{16}\right)^{-1/2} = \left(\frac{16}{49}\right)^{1/2}$ $= \sqrt{\frac{16}{49}}$ $= \frac{4}{7}$

Simplify the nth roots.

13. $\sqrt{-128}$ $i\sqrt{128}$ $i\sqrt{64}\sqrt{2}$ $i \cdot 8\sqrt{2}$ $8i\sqrt{2}$	14. $\sqrt[3]{-128}$ $\sqrt[3]{-64}\sqrt[3]{2}$ $-4\sqrt[3]{2}$	15. $\sqrt[4]{80^2}$ $(\sqrt[4]{80})^2$ $(\sqrt[4]{16}\sqrt[4]{5})^2$ $(2\sqrt[4]{5})^2 = 4\sqrt[4]{25}$
16. $(\sqrt[5]{-96})^2$ $(\sqrt[5]{-32}\sqrt[5]{3})^2$ $(-2\sqrt[5]{3})^2$ $+4\sqrt[5]{9}$	17. $\sqrt[3]{250}$ $\sqrt[3]{125}\sqrt[3]{2}$ $5\sqrt[3]{2}$	18. $\sqrt[3]{162}$ $\sqrt[3]{27}\sqrt[3]{6}$ $3\sqrt[3]{6}$

Simplify the nth roots (with variables).

19. $\sqrt[3]{108x^7}$ $\sqrt[3]{27x^6}\sqrt[3]{4x}$ $3x^2\sqrt[3]{4x}$	20. $\sqrt[4]{48x^7y^{13}}$ $\sqrt[4]{16x^4y^{12}}\sqrt[4]{3x^3y}$ $2xy^3\sqrt[4]{3x^3y}$	21. $\sqrt[3]{-56a^8b^{21}c^4}$ $\sqrt[3]{-27a^6b^{21}c^3}\sqrt[3]{2a^2c}$ $-3a^2b^7c\sqrt[3]{2a^2c}$
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SECTION 2: Operations with Nth Roots

Multiply/Divide.

<p>1. $\sqrt[4]{8} \cdot 3\sqrt[4]{8}$ $3\sqrt[4]{64}$</p>	<p>2. $\sqrt[5]{\frac{-160}{5}} = \sqrt[5]{-32}$ $= -2$</p>
<p>3. $3\sqrt[4]{8} \cdot 5\sqrt[4]{2}$ $15\sqrt[4]{16}$ $15(2) \rightarrow 30$</p>	<p>4. $\frac{\sqrt[3]{-256}}{\sqrt[3]{2}} = \sqrt[3]{-128}$ $= \sqrt[3]{-64} \sqrt[3]{2}$ $= -4\sqrt[3]{2}$</p>

Add/Subtract.

<p>5. $1\sqrt[3]{2} - 7\sqrt[3]{2}$ $-6\sqrt[3]{2}$</p>	<p>6. $\sqrt[3]{128} - \sqrt[3]{250}$ $\sqrt[3]{64} \sqrt[3]{2} - \sqrt[3]{125} \sqrt[3]{2}$ $4\sqrt[3]{2} - 5\sqrt[3]{2}$ $-1\sqrt[3]{2}$</p>
<p>7. $5\sqrt[4]{32} - 4\sqrt[4]{2}$ $5\sqrt[4]{16} \sqrt[4]{2} - 4\sqrt[4]{2}$ $5(2)\sqrt[4]{2} - 4\sqrt[4]{2}$ $10\sqrt[4]{2} - 4\sqrt[4]{2} = 9\sqrt[4]{2}$</p>	<p>8. $\sqrt{-45} - \sqrt{-125}$ $\sqrt{-9} \sqrt{5} - \sqrt{-25} \sqrt{5}$ $3i\sqrt{5} - 5i\sqrt{5}$ $-2i\sqrt{5}$</p>

Exponent properties with nth roots (multiply, divide, power to power)

<p>9. $x^{2/3} \cdot x^{1/5}$ $x^{2/3 + 1/5}$ $x^{13/15}$</p>	<p>10. $\left(x^{2/3}\right)^{3/7}$ $x^{6/21}$ $x^{2/7}$</p>	<p>11. $\frac{x^{1/4}}{x^{2/3}}$ $x^{1/4 - 2/3}$ $x^{-5/12}$ $\frac{1}{x^{5/12}}$</p> <p style="text-align: right;">$3 \cdot \frac{1}{4} - \frac{2 \cdot 4}{3 \cdot 4}$ $\frac{3}{12} - \frac{8}{12}$ $-\frac{5}{12}$</p>
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SECTION 3: Rationalize the Denominator

Rationalize the denominator.

<p>1. $\frac{5}{\sqrt{6}} \frac{\sqrt{6}}{\sqrt{6}} = \frac{5\sqrt{6}}{6}$</p>	<p>2. $\frac{-2}{6\sqrt{3}} \frac{\sqrt{3}}{\sqrt{3}} = \frac{-2\sqrt{3}}{6 \cdot 3}$ $= \frac{-2\sqrt{3}}{18} \rightarrow \frac{-\sqrt{3}}{9}$</p>
<p>3. $\frac{1}{(5-\sqrt{3})(5+\sqrt{3})} \cdot \frac{(5+\sqrt{3})}{(5+\sqrt{3})}$ $\frac{1(5+\sqrt{3})}{25+5\sqrt{3}-5\sqrt{3}-3}$ $\frac{5+\sqrt{3}}{22}$</p>	<p>4. $\frac{(1+\sqrt{3})(5-\sqrt{3})}{(5+\sqrt{3})(5-\sqrt{3})}$ $\frac{5-\sqrt{3}+5\sqrt{3}-3}{25-5\sqrt{3}+5\sqrt{3}-3}$ $\frac{2+4\sqrt{3}}{22} \rightarrow \frac{1+2\sqrt{3}}{11}$</p>
<p>5. $\frac{1}{\sqrt[3]{5}} \frac{\sqrt[3]{5^2}}{\sqrt[3]{5^2}}$ $\frac{1\sqrt[3]{5^2}}{\sqrt[3]{5^3}}$ $\frac{\sqrt[3]{25}}{5}$</p>	<p>6. $\frac{\sqrt[4]{5}}{\sqrt[4]{3}} \frac{\sqrt[4]{3^3}}{\sqrt[4]{3^3}}$ $\frac{\sqrt[4]{5} \sqrt[4]{27}}{\sqrt[4]{3^4}}$ $\frac{\sqrt[4]{135}}{3}$</p>
<p>5. $\frac{1}{4\sqrt[3]{2}} \cdot \frac{\sqrt[3]{2^2}}{\sqrt[3]{2^2}} \rightarrow \frac{\sqrt[3]{2^2}}{4\sqrt[3]{2^3}}$ $\frac{\sqrt[3]{4}}{4 \cdot 2}$ $\frac{\sqrt[3]{4}}{8}$</p>	<p>6. $\frac{6}{\sqrt[4]{3^2}} \cdot \frac{\sqrt[4]{3^2}}{\sqrt[4]{3^2}} \rightarrow \frac{6\sqrt[4]{3^2}}{\sqrt[4]{3^4}}$ $\frac{2\sqrt[4]{9}}{3}$</p>

$$\frac{\sqrt[3]{4}}{8}$$

$$2\sqrt[4]{9}$$

SECTION 4: Solve Power Equations

<p>5. $-2x^2 - 10 = 152$</p> $\frac{-2x^2 - 10 + 10}{-2} = \frac{152 + 10}{-2}$ $\frac{-2x^2}{-2} = \frac{162}{-2}$ $\sqrt{x^2} = \sqrt{-81}$ $x = \pm 9i$	<p>6. $\frac{4}{1} \left(\frac{1}{4} x^3 \right) = -2 \cdot 4$</p> $\sqrt[3]{x^3} = \sqrt[3]{-8}$ $x = -2$
<p>7. $\frac{6x^4}{6} = \frac{486}{6}$</p> $\sqrt[4]{x^4} = \sqrt[4]{81}$ $x = \pm 3$	<p>8. $\frac{1}{5}(x-3)^4 + 8 = 133$</p> $\frac{\frac{1}{5}(x-3)^4 + 8 - 8}{-8} = \frac{133 - 8}{-8}$ $\frac{\frac{1}{5}(x-3)^4}{-8} = \frac{125}{-8}$ $\sqrt[4]{(x-3)^4} = \sqrt[4]{1025}$ $x-3 = \pm 5$ $x+3 = \pm 5$ $x = 3 \pm 5$ <p style="text-align: right;">$x = 3+5, 3-5$ $x = 8, -2$</p>
<p>9. $(x-1)^3 + 3 = -122$</p> $\frac{(x-1)^3 + 3 - 3}{-3} = \frac{-122 - 3}{-3}$ $\sqrt[3]{(x-1)^3} = \sqrt[3]{-125}$ $x-1 = -5$ $x+1 = -5$ $x = -4$	<p>10. $\sqrt[5]{(x+5)^5} = \sqrt[5]{25}$</p> $x+5 = \sqrt[5]{25}$ $x-5 = \sqrt[5]{25}$ $x = -5 + \sqrt[5]{25}$
<p>11. $2(x-8)^2 - 8 = -108$</p> $\frac{2(x-8)^2 - 8 + 8}{2} = \frac{-108 + 8}{2}$ $\frac{2(x-8)^2}{2} = \frac{-100}{2}$ $\sqrt{(x-8)^2} = \sqrt{-50}$ $x-8 = \pm \sqrt{-50}$ $x-8 = \pm \sqrt{-25} \sqrt{2}$ $x-8 = \pm 5i\sqrt{2}$ $x+8 = \pm 5i\sqrt{2}$ $x = 8 \pm 5i\sqrt{2}$	<p>12. $\frac{4}{3} \left(\frac{3}{4} x^5 \right) = -240 \cdot \frac{4}{3}$</p> $\sqrt[5]{x^5} = \sqrt[5]{320}$ $x = \sqrt[5]{320}$ $x = \sqrt[5]{32} \sqrt[5]{10}$ $x = 2 \sqrt[5]{10}$

SECTION 5: Solve Radical Equations

<p>1. $\sqrt{6x+1}+9=16$</p> $\begin{array}{r} \phantom{\sqrt{6x+1}} \\ \phantom{\sqrt{6x+1}} \\ \hline \sqrt{6x+1} \\ \phantom{\sqrt{6x+1}} \\ \hline 6x+1 = 49 \\ \\ \\ \hline 6x = 48 \\ \\ \\ \hline x = 6 \end{array}$	<p>2. $\frac{2(x-1)^{1/2}}{2} = \frac{5}{2}$</p> $\begin{array}{r} \phantom{\frac{2(x-1)^{1/2}}{2}} \phantom{\frac{5}{2}} \\ \phantom{\frac{2(x-1)^{1/2}}{2}} \phantom{\frac{5}{2}} \\ \hline \frac{2(x-1)^{1/2}}{2} = \frac{5}{2} \\ \phantom{\frac{2(x-1)^{1/2}}{2}} \phantom{\frac{5}{2}} \\ \hline \sqrt{x-1} = \left(\frac{5}{2}\right)^2 \\ \phantom{\sqrt{x-1}} \phantom{\frac{5}{2}} \\ \phantom{\sqrt{x-1}} \phantom{\frac{5}{2}} \\ \hline x-1 = \frac{25}{4} \\ \phantom{\frac{25}{4}} \\ \phantom{\frac{25}{4}} \\ \hline x = 1 + \frac{25}{4} \\ \phantom{\frac{25}{4}} \\ \phantom{\frac{25}{4}} \\ \hline x = \frac{4}{4} + \frac{25}{4} \\ \phantom{\frac{25}{4}} \\ \phantom{\frac{25}{4}} \\ \hline x = \frac{29}{4} \end{array}$
<p>3. $\sqrt{\frac{2x}{3}}+6=8$</p> $\begin{array}{r} \phantom{\sqrt{\frac{2x}{3}}} \\ \phantom{\sqrt{\frac{2x}{3}}} \\ \hline \sqrt{\frac{2x}{3}} = 2 \\ \phantom{\sqrt{\frac{2x}{3}}} \\ \phantom{\sqrt{\frac{2x}{3}}} \\ \hline \frac{3}{2} \left(\frac{2x}{3}\right) = 4 \left(\frac{3}{2}\right) \\ \phantom{\frac{3}{2} \left(\frac{2x}{3}\right)} \phantom{\frac{3}{2}} \\ \phantom{\frac{3}{2} \left(\frac{2x}{3}\right)} \phantom{\frac{3}{2}} \\ \hline x = 6 \end{array}$	<p>4. $\sqrt{5x-7} = \sqrt{3x+3}$</p> $\begin{array}{r} \phantom{\sqrt{5x-7}} \phantom{\sqrt{3x+3}} \\ \phantom{\sqrt{5x-7}} \phantom{\sqrt{3x+3}} \\ \hline 5x-7 = 3x+3 \\ \phantom{\sqrt{3x+3}} \\ \phantom{\sqrt{3x+3}} \\ \hline -3x \phantom{\sqrt{3x+3}} \\ \phantom{\sqrt{3x+3}} \\ \hline 2x-7 = 3 \\ \phantom{\sqrt{3x+3}} \\ \phantom{\sqrt{3x+3}} \\ \hline +7 \phantom{\sqrt{3x+3}} \\ \phantom{\sqrt{3x+3}} \\ \hline 2x = 10 \\ \phantom{\sqrt{3x+3}} \\ \phantom{\sqrt{3x+3}} \\ \hline x = 5 \end{array}$
<p>5. $(4\sqrt{x})^2 = \sqrt{4x+27}$</p> $\begin{array}{r} \phantom{(4\sqrt{x})^2} \phantom{\sqrt{4x+27}} \\ \phantom{(4\sqrt{x})^2} \phantom{\sqrt{4x+27}} \\ \hline (4\sqrt{x})^2 = 4x+27 \\ \phantom{(4\sqrt{x})^2} \phantom{\sqrt{4x+27}} \\ \phantom{(4\sqrt{x})^2} \phantom{\sqrt{4x+27}} \\ \hline 16x = 4x+27 \\ \phantom{\sqrt{4x+27}} \\ \phantom{\sqrt{4x+27}} \\ \hline -4x \phantom{\sqrt{4x+27}} \\ \phantom{\sqrt{4x+27}} \\ \hline 12x = 27 \\ \phantom{\sqrt{4x+27}} \\ \phantom{\sqrt{4x+27}} \\ \hline x = \frac{27}{12} \\ \phantom{\sqrt{4x+27}} \\ \phantom{\sqrt{4x+27}} \\ \hline x = \frac{9}{4} \end{array}$	<p>6. $\sqrt[3]{5x-1}-2=2$</p> $\begin{array}{r} \phantom{\sqrt[3]{5x-1}} \\ \phantom{\sqrt[3]{5x-1}} \\ \hline \sqrt[3]{5x-1} = 4 \\ \phantom{\sqrt[3]{5x-1}} \\ \phantom{\sqrt[3]{5x-1}} \\ \hline 5x-1 = 64 \\ \\ \\ \hline +1 \\ \\ \hline 5x = 65 \\ \\ \\ \hline x = 13 \end{array}$
<p>7. $2\sqrt[3]{x-5}+13=3$</p> $\begin{array}{r} \phantom{2\sqrt[3]{x-5}} \\ \phantom{2\sqrt[3]{x-5}} \\ \hline 2\sqrt[3]{x-5} = -10 \\ \phantom{2\sqrt[3]{x-5}} \\ \phantom{2\sqrt[3]{x-5}} \\ \hline \sqrt[3]{x-5} = \frac{-10}{2} \\ \phantom{\sqrt[3]{x-5}} \\ \phantom{\sqrt[3]{x-5}} \\ \hline \sqrt[3]{x-5} = (-5)^3 \\ \phantom{\sqrt[3]{x-5}} \\ \phantom{\sqrt[3]{x-5}} \\ \hline x-5 = -125 \\ \\ \\ \hline +5 \\ \\ \hline x = -120 \end{array}$	<p>8. $\sqrt{x-5} = 2^4$</p> $\begin{array}{r} \phantom{\sqrt{x-5}} \\ \phantom{\sqrt{x-5}} \\ \hline x-5 = 16 \\ \\ \\ \hline +5 \\ \\ \hline x = 21 \end{array}$
<p>9. $\sqrt{7x+15} = (x+1)^2$</p> $\begin{array}{r} \phantom{\sqrt{7x+15}} \\ \phantom{\sqrt{7x+15}} \\ \hline 7x+15 = (x+1)^2 \\ \phantom{\sqrt{7x+15}} \\ \phantom{\sqrt{7x+15}} \\ \hline 7x+15 = (x+1)(x+1) \\ \phantom{\sqrt{7x+15}} \\ \phantom{\sqrt{7x+15}} \\ \hline 7x+15 = x^2+1x+1x+1 \\ \phantom{\sqrt{7x+15}} \\ \phantom{\sqrt{7x+15}} \\ \hline 7x+15 = x^2+2x+1 \\ \phantom{\sqrt{7x+15}} \\ \phantom{\sqrt{7x+15}} \\ \hline -7x-15 \\ \\ \hline 0 = x^2-5x-14 \\ \\ \\ \hline 0 = (x-7)(x+2) \\ \\ \\ \hline x = 7, -2 \end{array}$	<p>10. $\sqrt{21x+1} = (x+5)^2$</p> $\begin{array}{r} \phantom{\sqrt{21x+1}} \\ \phantom{\sqrt{21x+1}} \\ \hline 21x+1 = (x+5)^2 \\ \phantom{\sqrt{21x+1}} \\ \phantom{\sqrt{21x+1}} \\ \hline 21x+1 = (x+5)(x+5) \\ \phantom{\sqrt{21x+1}} \\ \phantom{\sqrt{21x+1}} \\ \hline 21x+1 = x^2+10x+25 \\ \phantom{\sqrt{21x+1}} \\ \phantom{\sqrt{21x+1}} \\ \hline -21x-1 \\ \\ \hline 0 = x^2-11x+24 \\ \\ \\ \hline 0 = (x-8)(x-3) \\ \\ \\ \hline x = 3, 8 \end{array}$

SECTION 6: SOL PRACTICE

1. Which expression is equivalent to $2\sqrt{12} - 3\sqrt{27} + 2\sqrt{48}$?

- A $4\sqrt{3}$
- B $\sqrt{3}$
- C $3\sqrt{3}$
- D $2\sqrt{3}$

$$2\sqrt{4}\sqrt{3} - 3\sqrt{9}\sqrt{3} + 2\sqrt{16}\sqrt{3}$$

$$2 \cdot 2\sqrt{3} - 3 \cdot 3\sqrt{3} + 2 \cdot 4\sqrt{3}$$

$$4\sqrt{3} - 9\sqrt{3} + 8\sqrt{3}$$

$$\boxed{3\sqrt{3}}$$

2. Which expression is equivalent to $\sqrt{\frac{7x}{16}}$?

- A $\frac{7x}{4}$
- B $\frac{7x}{8}$
- C $\frac{\sqrt{7x}}{4}$
- D $\frac{\sqrt{7x}}{8}$

$$\frac{\sqrt{7x}}{\sqrt{16}}$$

$$\boxed{\frac{\sqrt{7x}}{4}}$$

3. What is the solution to $|x + 4| < 2$?

- A $x < -6$ or $x > -2$
- B $-6 < x < -2$
- C $x < -2$
- D $2 < x < 6$

$$-2 < x + 4 < 2$$

$$\begin{array}{ccc} -4 & -4 & -4 \end{array}$$

$$\boxed{-6 < x < -2}$$

4. Which expression is equivalent to $\sqrt{75x^3} - \sqrt{27x^3}$, if $x > 0$?

- A $4x\sqrt{6x}$
- B $4x\sqrt{3x}$
- C $2x\sqrt{6x}$
- D $2x\sqrt{3x}$

$$\sqrt{25x^2}\sqrt{3x} - \sqrt{9x^2}\sqrt{3x}$$

$$5x\sqrt{3x} - 3x\sqrt{3x}$$

$$\boxed{2x\sqrt{3x}}$$

5. Which is simplified form of the following expression?

- A 6553.6
- B 8
- C 6
- D $\sqrt[5]{96}$

$$32^{\frac{3}{5}} = \sqrt[5]{32^3}$$

$$= 2^3$$

$$= \boxed{8}$$