

**Student:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

**Instructor:** Ray Brown  
**Course:** FRCC MAT 055.609 Algebraic  
Literacy 1930

**Assignment:** Unit 3 Quiz 10.1\_10.2\_10.3  
Review

1. Simplify by factoring. Assume that all variables under radicals represent nonnegative numbers.

$$\sqrt{x^4}$$

Select the correct choice below and, if necessary, fill in the answer box that completes your choice.

- A.  $\sqrt{x^4} =$  \_\_\_\_\_  
(Type an exact answer, using radicals as needed.)
- B. The square root is not a real number.

2. Simplify by factoring. Assume that all variables under radicals represent nonnegative numbers.

$$\sqrt{36x^6}$$

Select the correct choice below and, if necessary, fill in the answer box that completes your choice.

- A.  $\sqrt{36x^6} =$  \_\_\_\_\_  
(Type an exact answer, using radicals as needed.)
- B. The square root is not a real number.

3. Find the cube root.

$$\sqrt[3]{-\frac{1}{343}}$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A.  $\sqrt[3]{-\frac{1}{343}} =$  \_\_\_\_\_
- B. The root is not a real number.

4. Simplify. Assume that the variable represents any real number.

$$\sqrt{36x^2}$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A.  $\sqrt{36x^2} =$  \_\_\_\_\_
- B. The root does not represent a real number.

5. Simplify. Assume that the variable represents any real number.

$$\sqrt{(x-9)^2}$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A.  $\sqrt{(x-9)^2} =$  \_\_\_\_\_
- B. The root does not represent a real number.

6. Simplify the radical. Assume that all variables represent positive real numbers.

$$\sqrt{49a^6b^{28}}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $\sqrt{49a^6b^{28}} =$  \_\_\_\_\_
- B. The square root is not a real number.

7. Simplify the radical. Assume that all variables represent positive real numbers.

$$\sqrt[3]{-64x^{12}y^9}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $\sqrt[3]{-64x^{12}y^9} =$  \_\_\_\_\_
- B. The radical does not represent a real number.

8. Use radical notation to write the expression. Simplify if possible.

$$-16^{\frac{1}{2}}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $-16^{\frac{1}{2}} =$  \_\_\_\_\_  
(Type an exact answer, using radicals as needed. Simplify your answer.)
- B. The answer is not a real number.

9. Use radical notation to rewrite the expression. Simplify if possible.

$$625^{5/4}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $625^{5/4} =$  \_\_\_\_\_  
(Simplify your answer. Type an exact answer, using radicals as needed.)
- B. The answer is not a real number.

10. Use radical notation to write the expression. Simplify if possible.

$$(-125)^{\frac{2}{3}}$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A.  $(-125)^{\frac{2}{3}} =$  \_\_\_\_\_  
(Simplify your answer. Type an exact answer, using radicals as needed.)
- B. The answer is not a real number.

11. Use rational exponents to simplify the radical. Assume that all variables represent positive numbers.

$$\sqrt[6]{x^3}$$

$$\sqrt[6]{x^3} = \underline{\hspace{2cm}}$$

12. Use rational exponents to simplify the radical.

$$\sqrt[6]{8}$$

$$\sqrt[6]{8} = \underline{\hspace{2cm}} \text{ (Simplify your answer. Type an exact answer, using radicals as needed.)}$$

13. Use rational exponents to simplify the radical. Assume that all variables represent positive numbers.

$$\sqrt[8]{6561x^4}$$

$$\sqrt[8]{6561x^4} = \underline{\hspace{2cm}}$$

14. Use rational exponents to write as a single radical expression. Assume that all variables represent positive real numbers.

$$\sqrt[5]{y} \cdot \sqrt[3]{y^2}$$

$$\sqrt[5]{y} \cdot \sqrt[3]{y^2} = \underline{\hspace{2cm}}$$

15. Simplify the expression by first converting to rational exponents. Assume that all variables represent positive real numbers.

$$\frac{\sqrt[3]{y^5}}{\sqrt[4]{y^5}}$$

The simplified form is \_\_\_\_\_.  
(Type an exact answer, using radicals as needed.)

16. Use the product rule to multiply.

$$\sqrt[3]{2} \cdot \sqrt[3]{5}$$

$$\sqrt[3]{2} \cdot \sqrt[3]{5} = \underline{\hspace{2cm}}$$

(Type an exact answer, using radicals as needed. Simplify your answer.)

17. Use the product rule to multiply. Assume that all variables represent positive real numbers.

$$\sqrt{7} \cdot \sqrt{5x}$$


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$$\sqrt{7} \cdot \sqrt{5x} = \underline{\hspace{2cm}}$$

(Type an exact answer, using radicals as needed. Simplify your answer.)

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18. Use the product rule to multiply. Assume that all variables represent positive real numbers.

$$\sqrt[4]{4x^3} \cdot \sqrt[4]{9}$$


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$$\sqrt[4]{4x^3} \cdot \sqrt[4]{9} = \underline{\hspace{2cm}}$$

(Type an exact answer, using radicals as needed. Simplify your answer.)

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19. Use the quotient rule to simplify. Assume that all variables represent positive real numbers.

$$\sqrt{\frac{5x^2}{4y^2}}$$


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$$\sqrt{\frac{5x^2}{4y^2}} = \underline{\hspace{2cm}}$$

(Simplify your answer. Type an exact answer, using radicals as needed.)

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20. Use the quotient rule to simplify. Assume that all variables represent positive real numbers.

$$-\sqrt[3]{\frac{z^4}{27x^6}}$$


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$$-\sqrt[3]{\frac{z^4}{27x^6}} = \underline{\hspace{2cm}}$$

(Type an exact answer, using radicals as needed. Simplify your answer.)

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21. Use the quotient rule to divide. Then simplify if possible.

$$\frac{\sqrt[3]{40}}{\sqrt[3]{5}}$$


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$$\frac{\sqrt[3]{40}}{\sqrt[3]{5}} = \underline{\hspace{2cm}}$$

(Type an exact answer, using radicals as needed. Simplify your answer.)

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22. Use the quotient rule to divide. Then simplify if possible.

$$\frac{5\sqrt[4]{162}}{\sqrt[4]{2}}$$

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$$\frac{5\sqrt[4]{162}}{\sqrt[4]{2}} = \underline{\hspace{2cm}}$$

(Type an exact answer, using radicals as needed. Simplify your answer.)

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23. Use the quotient rule to divide. Assume that all variables represent positive real numbers.

$$\frac{\sqrt{x^5y^9}}{\sqrt{xy}}$$

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$$\frac{\sqrt{x^5y^9}}{\sqrt{xy}} = \underline{\hspace{2cm}} \text{ (Simplify your answer. Use positive exponents only.)}$$

1. A.  $\sqrt{x^4} = \underline{x^2}$  (Type an exact answer, using radicals as needed.)

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2. A.  $\sqrt{36x^6} = \underline{6x^3}$  (Type an exact answer, using radicals as needed.)

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3. A.  $\sqrt[3]{-\frac{1}{343}} = \underline{-\frac{1}{7}}$

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4. A.  $\sqrt{36x^2} = \underline{6|x|}$

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5. A.  $\sqrt{(x-9)^2} = \underline{|x-9|}$

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6. A.  $\sqrt{49a^6b^{28}} = \underline{7a^3b^{14}}$

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7. A.  $\sqrt[3]{-64x^{12}y^9} = \underline{-4x^4y^3}$

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8. A.  $-16^{\frac{1}{2}} = \underline{-4}$  (Type an exact answer, using radicals as needed. Simplify your answer.)

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9. A.  $625^{5/4} = \underline{3125}$  (Simplify your answer. Type an exact answer, using radicals as needed.)

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10. A.  $(-125)^{\frac{2}{3}} = \underline{25}$  (Simplify your answer. Type an exact answer, using radicals as needed.)

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11.  $\sqrt{x}$

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12.  $\sqrt[2]{2}$

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13.  $3\sqrt{x}$

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14.  $15\sqrt[5]{y^{13}}$

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15.  $12\sqrt[3]{y^5}$

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16.  $\sqrt[3]{10}$ 

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17.  $\sqrt{35x}$ 

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18.  $\sqrt[4]{36x^3}$ 

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19.  $\frac{x\sqrt{5}}{2y}$ 

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20.  $-\frac{z\sqrt[3]{z}}{3x^2}$ 

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21. 2

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22. 15

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23.  $x^2y^4$ 

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