Student: _____ **Date:** _____	**Instructor:** Ray Brown **Course:** M055 Sum17 CAI 10054 G41	**Assignment:** ch17rev HW

1. Click the link below to watch a video reviewing concepts in this chapter. You are encouraged to watch the video and work problems with the instructor to help ensure your understanding of the material.

Chapter 17 Review[1]

- ○ True - I understand the concept.
- ○ False - I am not understanding the concept and intend to seek assistance.

1: http://www.screencast.com/t/hgbyEYKpQx0

Answer: True - I understand the concept.

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2. Find $\sqrt[5]{-1024}$.

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

- ○ **A.** $\sqrt[5]{-1024}$ = _____ (Simplify your answer.)
- ○ **B.** The root is not a real number.

Answer: A. $\sqrt[5]{-1024}$ = **−4** (Simplify your answer.)

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3. Evaluate the expression by hand, if possible. Variables represent any real number.

$\sqrt{x^8}$, $x > 0$

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

- ○ **A.** $\sqrt{x^8}$ = _____ (Type your answer using exponential notation.)
- ○ **B.** It is not possible to evaluate the expression.

Answer: A. $\sqrt{x^8}$ = x^4 (Type your answer using exponential notation.)

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4. Match $\sqrt{x^3}$ to the expression that it equals.

Choose the correct answer below.

- **A.** $\frac{1}{9}$
- **B.** $x^{3/2}$
- **C.** $\sqrt[5]{x}$
- **D.** $\frac{1}{5}$
- **E.** $\sqrt[6]{x}$
- **F.** 4
- **G.** $\sqrt[6]{x^5}$
- **H.** $\sqrt[3]{x^2}$

Answer: B. $x^{3/2}$

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5. Use radical notation to write the given expression.

$3^{\frac{3}{5}}$

$3^{\frac{3}{5}} =$ _____
(Type an exact answer, using radicals as needed.)

Answer: $\sqrt[5]{3^3}$

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6. **A.** Write the expression $4^{3/2}$ in radical notation.
B. Evaluate the radical expression.

A. Write the expression in radical notation. Do not evaluate.

$4^{3/2} =$ _____
(Type an exact answer, using radicals as needed.)

B. Evaluate the radical expression.

_____
(Simplify your answer. Type an integer or a fraction.)

Answers $\sqrt{4^3}$

8

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7. Write the expression in radical notation.

$x^{-2/3}$

$x^{-2/3}$ = _____
(Type an exact answer, using radicals as needed. Use positive exponents only.)

Answer: $\frac{1}{\sqrt[3]{x^2}}$

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8. Write the expression in radical notation.

$(7x)^{1/6}$

$(7x)^{1/6}$ = _____ (Type an exact answer, using radicals as needed.)

Answer: $\sqrt[6]{7x}$

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9. Use positive rational exponents to simplify the expression. Assume that all variables are positive.

$\sqrt[7]{x^7 y^{14}}$

$\sqrt[7]{x^7 y^{14}}$ = _____
(Use integers or fractions for any numbers in the expression. Use positive exponents only.)

Answer: xy^2

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10. Use positive rational exponents to simplify the expression.

$\sqrt{y^5}\sqrt[7]{y^6}$

$\sqrt{y^5}\sqrt[7]{y^6}$ = _____
(Use integers or fractions for any numbers in the expression. Use positive exponents only.)

Answer: $y^{\frac{47}{14}}$

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11. Use positive rational exponents to simplify the expression. Assume that all variables are positive.

$$\left(\frac{y^4}{16}\right)^{3/4}$$

$\left(\frac{y^4}{16}\right)^{3/4}$ = _____

(Simplify your answer. Use integers or fractions for any numbers in the expression. Use positive exponents only.)

Answer: $\frac{y^3}{8}$

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12. Use the product rule for radicals to find the product.

$$\sqrt{5} \cdot \sqrt{125}$$

$\sqrt{5} \cdot \sqrt{125}$ = _____ (Simplify your answer.)

Answer: 25

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13. Simplify the expression. Assume that all variables are positive.

$$\frac{\sqrt{4xy^2}}{\sqrt{x}}$$

$\frac{\sqrt{4xy^2}}{\sqrt{x}}$ = _____

(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)

Answer: 2y

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14. Simplify the following expression. Assume that all variables are positive.

$$\sqrt[5]{\frac{3ab^5}{3a^{11}b^5}}$$

$\sqrt[5]{\frac{3ab^5}{3a^{11}b^5}}$ = _____

(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)

Answer: $\frac{1}{a^2}$

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15. Simplify the expression. Assume that all variables are positive.

$\sqrt{16a^2b}$

$\sqrt{16a^2b}$ = _____
(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)

Answer: $4a\sqrt{b}$

---

16. Simplify the expression. Assume that all variables are positive.

$\sqrt{\frac{x}{3}} \cdot \sqrt{\frac{x}{12}}$

$\sqrt{\frac{x}{3}} \cdot \sqrt{\frac{x}{12}}$ = _____
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)

Answer: $\frac{x}{6}$

---

17. Simplify the expression. Assume that all variables are positive.

$\sqrt[4]{5x^3} \cdot \sqrt[4]{10y^2}$

$\sqrt[4]{5x^3} \cdot \sqrt[4]{10y^2}$ = _____
(Simplify your answer. Type an exact answer, using radicals as needed.)

Answer: $\sqrt[4]{50x^3y^2}$

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18. If possible, simplify the expression. Assume that all variables are positive.

$5\sqrt{x} + 6\sqrt{x} - \sqrt{y}$

Select the correct choice below and fill in any answer boxes in your choice.

- **A.** $5\sqrt{x} + 6\sqrt{x} - \sqrt{y}$ = _____ (Type an exact answer, using radicals as needed.)
- **B.** The expression cannot be simplified.

Answer: A. $5\sqrt{x} + 6\sqrt{x} - \sqrt{y}$ = **$11\sqrt{x} - \sqrt{y}$** (Type an exact answer, using radicals as needed.)

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19. If possible, simplify the expression.

$\sqrt{27} - 2\sqrt{3}$

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

- **A.** $\sqrt{27} - 2\sqrt{3} =$ _____ (Type an exact answer, using radicals as needed.)
- **B.** The expression cannot be simplified.

Answer: A. $\sqrt{27} - 2\sqrt{3} =$ $\sqrt{3}$ (Type an exact answer, using radicals as needed.)

---

20. Multiply.

$(4 + \sqrt{7})(4 - \sqrt{7})$

$(4 + \sqrt{7})(4 - \sqrt{7}) =$ _____
(Simplify your answer. Type an exact answer, using radicals as needed.)

Answer: 9

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21. Multiply and simplify.

$\left(\sqrt{mn} - 7\right)\left(\sqrt{mn} + 7\right)$

$\left(\sqrt{mn} - 7\right)\left(\sqrt{mn} + 7\right) =$ _____
(Simplify your answer. Type an exact answer, using radicals as needed.)

Answer: $mn - 49$

---

22. Rationalize the denominator in the expression.

$\dfrac{56}{\sqrt{7}}$

The answer is _____.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)

Answer: $8\sqrt{7}$

---

23. Rationalize the denominator.

$$\frac{\sqrt{2}}{\sqrt{5}+2}$$

$\frac{\sqrt{2}}{\sqrt{5}+2}$ = _____

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

Answer: $\sqrt{10}-2\sqrt{2}$

---

24. Solve the equation symbolically. Check your results.

$$\sqrt{3y+5}=7$$

The solution is y = _____.

(Simplify your answer. Type an integer or a fraction. Use a comma to separate answers as needed.)

Answer: $\frac{44}{3}$

---

25. Solve the equation symbolically. Check your results.

$$\sqrt{y+5}-3=5$$

The solution is y = _____.

(Simplify your answer. Type an integer or a fraction. Use a comma to separate answers as needed.)

Answer: 59

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26. Solve the equation symbolically. Check your results.

$$\sqrt{17x+9}=x+3$$

The solution(s) is(are) x = _____.

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

Answer: 11,0

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27. Solve for the indicated letter.

$w=\sqrt{\frac{5hA}{m}}$, for A.

The solution is A = _____.

Answer: $\frac{w^2 \cdot m}{5h}$

---

28. Solve for V.

$r = \sqrt{\frac{7V}{\pi h}}$

$V =$ _____

Answer: $\frac{\pi h r^2}{7}$

---

29. Express in terms of i.

$\sqrt{-20}$

$\sqrt{-20} =$ _____
(Simplify your answer. Type an exact answer, using radicals and i as needed.)

Answer: $2i\sqrt{5}$

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30. Write the expression in standard form.

$(8 + 9i) + (5 - i)$

$(8 + 9i) + (5 - i) =$ _____
(Simplify your answer. Type your answer in the form $a + bi$.)

Answer: $13 + 8i$

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31. Write the expression in standard form.

$(5 - i) - (9 + 4i)$

$(5 - i) - (9 + 4i) =$ _____
(Simplify your answer. Type your answer in the form $a + bi$.)

Answer: $-4 - 5i$

---

32. Write the expression in standard form.

$(2 + 4i)(9 - 5i)$

$(2 + 4i)(9 - 5i) =$ _____
(Simplify your answer. Type your answer in the form $a + bi$.)

Answer: $38 + 26i$

---

33. Write the expression in standard form.

$$\frac{2+8i}{1-i}$$

$\frac{2+8i}{1-i}$ = _____

(Type your answer in the form a + bi.)

Answer: $-3+5i$

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34. Simplify.

i^{21}

i^{21} = _____

Answer: i

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35. Simplify.

i^{10}

i^{10} = _____

Answer: -1