Name: _____   Date: _____
Instructor: _____   Section: _____

Practice Set 1.4

Use the choices below to fill in each blank.

    radicand   principal square root   factors
    index   exponent   base

1. In the expression $\sqrt[n]{a}$, n is called the _____.

2. 3 is the _____ of 9.

3. In the expression $\sqrt[n]{a}$, a is called the _____.

4. In the expression a^n , a is called the _____.

5. In the expression a^n , there are n _____ of a.

Evaluate each expression without a calculator.

6. -3^2

7. $(-5)^3$

8. $-\left(\dfrac{2}{5}\right)^4$

9. $(0.4)^2$

10. $-\sqrt{49}$

11. $\sqrt[3]{-27}$

12. $\sqrt[4]{\dfrac{1}{81}}$

13. $-\sqrt{0.36}$

14. $\sqrt[3]{-\dfrac{64}{125}}$

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

Practice Set 1.4

Use a calculator to evaluate each expression. Round each answer to the nearest thousandth.

15. $(1.45)^4$ **16.** $-\left(-\dfrac{15}{11}\right)^7$ **17.** $\sqrt[4]{63.4}$ **15.** _____

16. _____

17. _____

Evaluate each expression.

18. $5^2 + 3^3 - 2^4 - (-1)^{12}$ **19.** $\left(\dfrac{1}{3}\right)^4 - \left(\dfrac{2}{3}\right)^2 + \left(\dfrac{2}{3}\right)^3$ **20.** $6 \cdot 3 \div 9 - 2^3$ **18.** _____

19. _____

20. _____

Evaluate each expression.

21. $2[8 - (56 \div 7) - 3]^4$ **22.** $\dfrac{6 - (3 + 4)^3 - 4}{5(3 - 6) - 2^4}$ **23.** $\dfrac{18 \div 3 + 4 \cdot 2}{\sqrt{36} \div 2 + 12 \div 2^2}$ **21.** _____

22. _____

23. _____

Evaluate each expression for $x = -2$ and $y = 3$.

24. $3x^2 - xy + 2y$ **25.** $5(x - 6)^2$ **26.** $x^3 + 2y^3$ **24.** _____

25. _____

26. _____

Use a calculator to evaluate the expression.

27. The heat index for a given air temperature, x in degrees Fahrenheit, when the humidity is 50% can be approximated by:
$$\text{heat index} = 0.0295x^2 - 3.362x + 160.357$$
Find the heat index to the nearest degree when the air temperature is 70°F.

27. _____

28. The duration of a thunderstorm in hours can be estimated if the diameter, d in miles, of the storm is known by using the formula:
$$\text{duration of thunderstorm} = \frac{\sqrt{d^3}}{6}$$
Find the approximate duration in hours of a storm 5 miles in diameter.
Round the answer to the nearest tenth.

28. _____

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