Algebra 2 w/ Trig

3.1 nth Roots

Warm-Up:

**Evaluate without using a calculator.**

 

----------------------------------------------------------------NOTES--------------------------------------------------------------------------

Example 1: Find nth roots

**Find the indicated real** *nth* **root**(**s**) **of** *a***.**

**a.** *n* = 3, *a* = –216 **b.** *n* = 4, *a* = 81

Example 2: Evaluate Expressions with Rational Exponents

**Evaluate** (**a**) 163/2(**b**)32–3/5**.**

Example 3: Approximate Roots with a Calculator



**Evaluate expressions without using a calculator.**

**5.** 45/2 **6.**  9–1/2

**7.** 813/4 **8.** 17/8

YOU TRY

**Find the indicated real** *nth* **root**(**s**) **of** *a***.**

**1.** *n* = 4, *a* = 625 **2.** *n* = 6, *a* = 64

**3.** *n* = 3, *a* = –64**.** 4. *n* = 5, *a* = 243

**Evaluate the expression using a calculator. Round the result to two decimal places when appropriate.**

 

Example 4: Solve Equations Using nth roots

**Solve the equation.**

 

Example 5: Use nth roots in problem solving

**A study determined that the weight** *w*(**in** grams) **of coral cod near Palawan Island**, **Philippines**, **can be approximated using the model**

*w* = 0.0167ℓ3

**where** *l* **is the coral cod’s length** (**in** centimeters)**. Estimate the length of a coral cod that weighs** 200grams**.**

KEEP GOING:

**1.** **Find the** *nth* **roots of** *a* **if** *n* = 4 **and** *a* = 10,000**.** **Solve the equation. Round to two decimal places:**



**Evaluate the expression without using a calculator** 

**2.** 49 –3/2



YOU TRY:

 **Solve the equation. Round the result to two decimal places when appropriate.**

**13.** *x*3 = 64

 

 

**19. WHAT IF? Use the information from Example** 5 **to estimate the length of a coral cod that has the given weight.**

**a.** 275grams **b.** 340grams

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