8.1 Radical Expressions and Graphs

Note Title 5/12/2016

$$\text{index}\sqrt{\text{Radicand}}$$

RADICAL SIGN

RADICAL

$\sqrt{4}$

NO = ⇒ EXPRESSION ⇒ USE SIGN GIVEN

Getting ahead of the curriculum

Transformations

The transformations given in Lesson 2.7 are summarized below for the square-root parent function, $y = \sqrt{x}$.

Vertical stretch or compression by a factor of $|a|$; for $a < 0$, the graph is a reflection across the x-axis.

Vertical translation k units up for $k > 0$ and $|k|$ units down for $k < 0$

index

$$y = a\sqrt[2]{b(x - h)} + k$$

Horizontal stretch or compression by a factor of $|\frac{1}{b}|$; for $b < 0$, the graph is a reflection across the y-axis.

Horizontal translation h units to the right for $h > 0$ and $|h|$ units to the left for $h < 0$

8.1 Radical Expressions and Graphs
(No Calculator) - Exercises 13,15,17,18,20,23-27,31-35odd, 37-40 all
(Re-write decimals as fractions), 65-68all

14. $-\sqrt{121}$ $-(121^{1/2})$

16. $\sqrt[3]{343} = 343^{1/3} = 7$

49 7

7 7

Divisibility Rules

Divisible: able to be divided evenly with no remainder

A number is divisible by...	If...
2	the last digit is even
3	the sum of the digits is divisible by 3
4	the last two digits form a number that is divisible by 4
5	the last digit is a 5 or a 0
6	the number is divisible by both 2 and 3
7	you can double the last digit and subtract the sum from the rest of the number, and set an answer that is divisible by 7 (including 0)
8	the last three digits form a number that is divisible by 8
9	the sum of all the digits is divisible by 9
10	the number ends in 0

17. $\sqrt[3]{-64} = \sqrt[3]{(-4)(-4)(-4)} = -4$

19. $-\sqrt[3]{512} = -8$

34. $\sqrt[4]{\frac{81}{16}} = \frac{\sqrt[4]{3^4}}{\sqrt[4]{2^4}} = \frac{3}{2}$

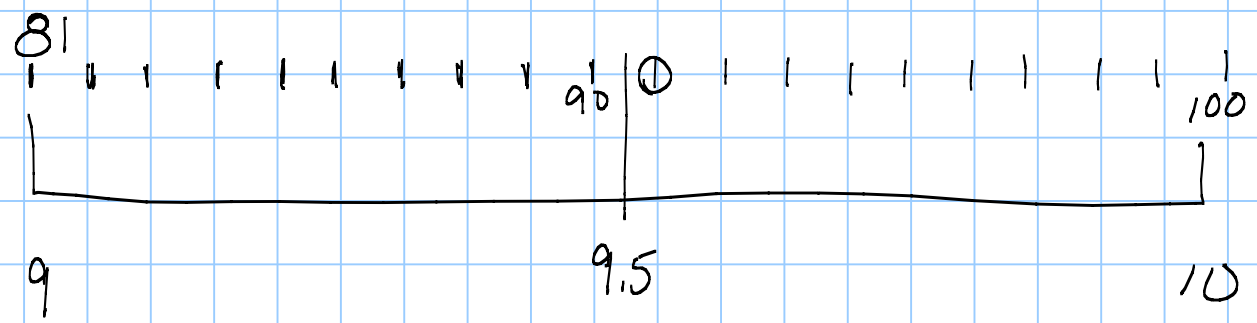
38. $\sqrt[2]{0.81} = \sqrt{\frac{81}{100}} = \frac{9}{10} = .9$

40. $\sqrt[3]{.125} = \sqrt[3]{\frac{125}{1000}} = \frac{5}{10} = \frac{1}{2} = .5$

66. $\sqrt[3]{m^9} = (m^9)^{1/3} = m^{9/3} = m^3$

68. $\sqrt[4]{k^{20}} = k^{20/4} = k^5$

74. $-\sqrt{91} \approx -9.52$



25. $\sqrt[4]{-625}$

$\sqrt[4]{-1} \cdot \sqrt[4]{625}$

$5\sqrt[4]{-1}$

67. $\sqrt[6]{x^{30}}$

$|x^{30}|$

$|x|^{\frac{30}{6}} = |x|^5$