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Continue 7.1 (96–101)
Talk about Remediation Assignment

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# = number

odd # $\sqrt{\text{Negative \#}}$ = Negative #

even # $\sqrt{\text{Negative \#}}$ = non real #
"not a real number"

(a) $\sqrt{5}$ = pos

(b) $\sqrt[3]{-17}$ = neg

(c) $\sqrt[10]{-10}$ = non real (NaRN - not a real number)

Prime Factorization

$4x = 2 \cdot 2 \cdot x$

4 x
2 2

7.1.1 Prime factorization of $270x^2y^3$

$270x^2y^3$
270 $x^2$ $y^3$
3 90 x x y y y
9 10
3 3 2 5

$270x^2y^3 = 2 \cdot 3 \cdot 5 \cdot 3 \cdot 5 \cdot x \cdot x \cdot y \cdot y \cdot y$



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Continue 7.1 (96–101)
Talk about Remediation Assignment

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# = number

odd $\sqrt[\#]{\text{Negative \#}}$ = Negative #

even $\sqrt[\#]{\text{Negative \#}}$ = nonreal #
"not a real number"

(a) $\sqrt{13}$ = pos

(b) $\sqrt[3]{-17}$ = neg

(c) $\sqrt[10]{-10}$ = nonreal (NaRN - not a real number)

Prime Factorization

$4x = 2 \cdot 2 \cdot x$

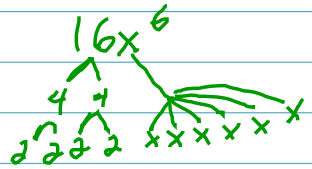
4 x
2 2

7.1.1 Prime factorization of $270x^2y^3$

$270x^2y^3$
270 $x^2$ $y^3$
3 90 x x y y y
9 10
3 3 2 5

$270x^2y^3 = 2 \cdot 3 \cdot 3 \cdot 3 \cdot 5 \cdot x \cdot x \cdot y \cdot y \cdot y$

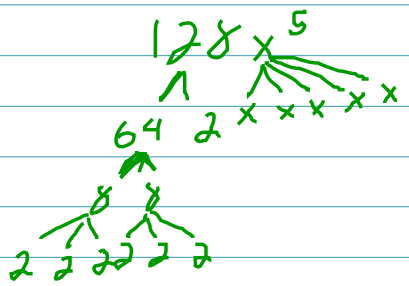
7.1.61 Simplify




$\sqrt{16x^6} = \sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x}$

$\sqrt{16x^6} = 4x^3$

7.3.41 Simplify




$\sqrt[3]{128x^5} = \sqrt[3]{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot x \cdot x \cdot x \cdot x \cdot x}$

$\sqrt[3]{128x^5} = 2 \cdot 2 \cdot x \cdot \sqrt[3]{2 \cdot x \cdot x}$

$\sqrt[3]{128x^5} = 4x \cdot \sqrt[3]{2x^2}$

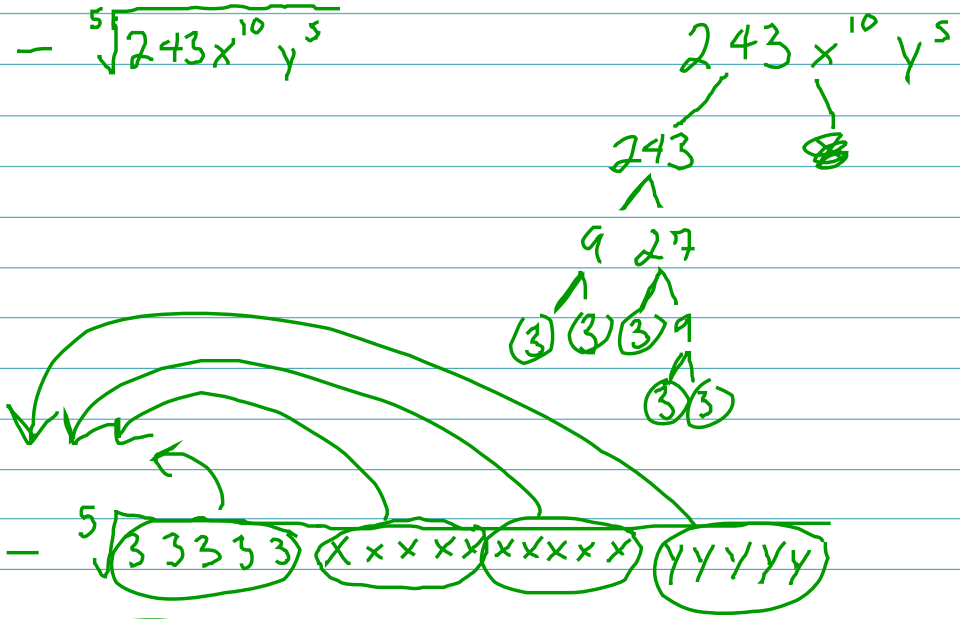
7.1.2 Simplify

$\sqrt{16+9x^6}$ → can't be simplified!

7.1.67 Simplify

$\sqrt[5]{-243x^{10}y^5}$ ← odd root of a negative

$-\sqrt[5]{243x^{10}y^5}$




$-3x^2y$ (drop the radical because everything came out)

7.3.53 Simplify $-\sqrt{448x^6y^{15}}$

$-\sqrt{2\cdot2\cdot2\cdot2\cdot2\cdot2\cdot7\cdot x\cdot x\cdot x\cdot x\cdot x\cdot x\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y}$

$-2\,2\cdot2\cdot x\cdot x\cdot x\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y\cdot y$

$-8x^3y^7\cdot\sqrt{7y}$

Remember: if your variable could be negative and your index is even, then you need absolute value bars.

7.1.47 $x$ can be any real #.
Simplify.

$\sqrt[2]{49x^2} = |7x|$

index even ✓
x can be neg? ✓

↓

or

$\pm|7x|$ only x needs the bars.

7.1.49 Simplify. $x$ can be any real #.

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

can x be negative?
yes!
is the index even?
no!
no absolute value bars

# Graph Square and Cube Root Functions

7.1.87) Graph and identify domain.

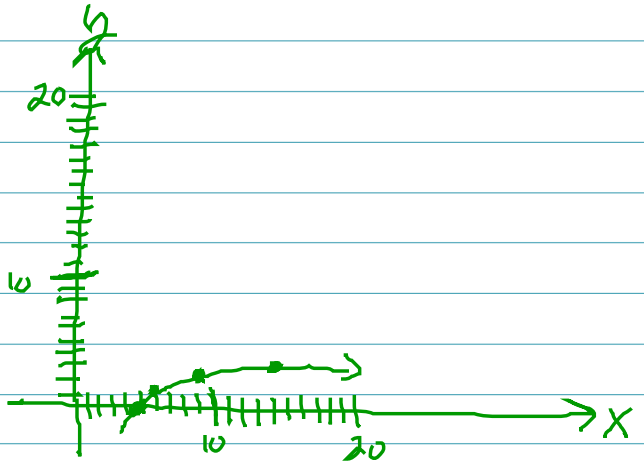
$f(x) = \sqrt{x-5}$ even root

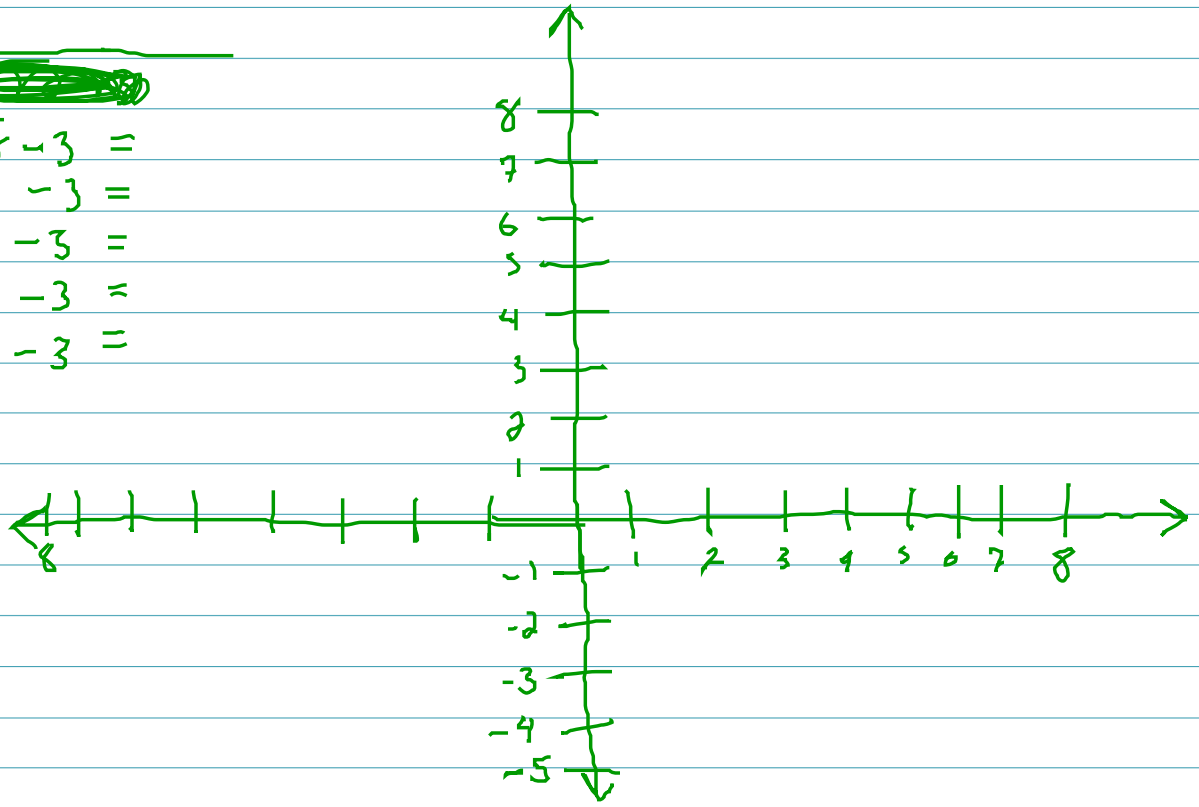
$x - 5$ is not negative

$x - 5 \geq 0$

$x \geq 5$

| x | y | |
|---|---|---|
| 5 | $\sqrt{5-5} = 0$ | (5, 0) |
| 6 | $\sqrt{6-5} = 1$ | (6, 1) |
| 9 | $\sqrt{9-5} = 2$ | (9, 2) |
| 19 | $\sqrt{19-5} = 3$ | (19, 3) |




7.1.89) $f(x) = \sqrt[3]{x} - 3$

| x | y |
|---|---|
| −8 | $\sqrt[3]{-8} - 3 =$ |
| −1 | $\sqrt[3]{-1} - 3 =$ |
| 0 | $\sqrt[3]{0} - 3 =$ |
| 1 | $\sqrt[3]{1} - 3 =$ |
| 8 | $\sqrt[3]{8} - 3 =$ |