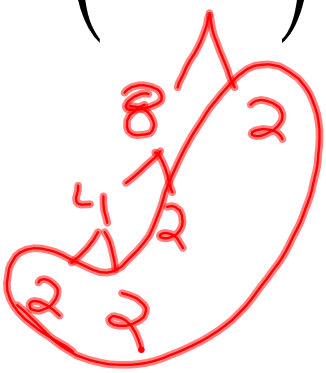
Chapters 6.1-6.4 Review

6.1 - nth roots and rational exponents

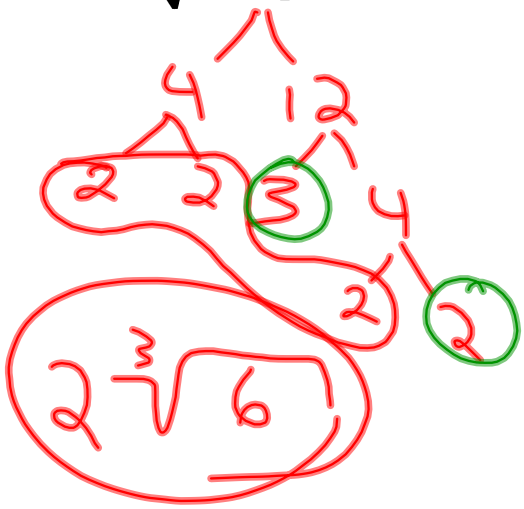
$\left(\sqrt[4]{16}\right)^5$ $= 2^5$ $= 32$



$27^{-4/3}$ $= \frac{1}{27^{\frac{4}{3}}}$ $= \frac{1}{\sqrt[3]{27^4}}$ $= \frac{1}{81}$

6.2 - Properties of Rational Exponents

$\sqrt[3]{48}$



$$\left(\frac{x^4}{y^8}\right)^{1/2}$$

$$\frac{(x^4)^{\frac{1}{2}}}{(y^8)^{\frac{1}{2}}}$$

$$\frac{x^2}{y^4}$$

$$x^{2-1}$$

$$x^{\frac{1}{2}}$$

6.3 - Function Operations and Compositions

$f(x)=3x^2+1$ $g(x)=x+4$

$f(x)+g(x)$

$(3x^2+1)+(x+4)$

$3x^2+x+5$

$f(x)\cdot g(x)$

$(3x^2+1)(x+4)$

$3x^3+12x^2+x+4$

$f(g(x))$

$f(x+4)$

$3(x+4)^2+1$

$3(x+4)(x+4)+1$

$3(x^2+8x+16)+1$

$3x^2+24x+49$

6.4 - Inverse Functions

Find the inverse function of:

$$y = 3x + 7$$

$f^{-1}(x)$

$f(f^{-1}(x)) = x$

$x = 3y + 7$

$-7 \quad -7$

$\frac{x-7}{3} = \frac{3y}{3}$

$y = \frac{x-7}{3}$

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