KEY

Prerequisite Skills

Examples on this page reference necessary concepts from PreCalculus that students must recall with little time spent reviewing in class.

1) Factoring: Factor $8x^2-14x-15$

2) Simplifying Rational Functions: Simplify $\frac{x+15}{x+8}-\frac{8x-6}{x^2+6x-16}$

3) Solving Rational Equations: Solve $\frac{2x}{x+3}+\frac{5}{x}-4=\frac{18}{x^2+3x}$

4) Logarithms:

(a) Evaluate $\ln e$

(b) Evaluate $\ln 1$

(c) Simplify $\log x+\log y-\log z$

(d) Solve $4^x=3$

5) Evaluate Unit Circles Values for Quadrantal Angles and $\frac{\pi}{3},\frac{\pi}{4}$, and $\frac{\pi}{6}$ Angles: Evaluate $\sin\frac{7\pi}{4}$

6) Rational Exponents: Evaluate (a) $8^{\frac{2}{3}}$ and (b) $8^{-\frac{2}{3}}$

7) Equation of a line in Point-Slope Form: Write the equation of the line through $7,-5$ with slope $\frac{2}{3}$.

Answers:

1) $2x-5$ $4x+3$

2) $\frac{x-3}{x-2}$

3) $\left\{-\frac{1}{2}\right\}$

4a) 1

4b) 0

4c) $\log\frac{xy}{z}$

4d) 0.792**

5) $-\frac{\sqrt{2}}{2}$

6a) 4

6b) $\frac{1}{4}$

7) $y+5=\frac{2}{3}x-7$

Prerequisite Skills:

1) $8x^2-14x-15$

$(8x^2-20x)+6x-15$

$4x(2x-5)+3(2x-5)$

$(4x+3)(2x-5)$

2) $\frac{x+15}{x+8}-\frac{8x-6}{x^2+6x-16}$

$\frac{(x-2)}{(x-2)}\cdot\frac{x+15}{(x+8)}-\frac{(8x-6)}{(x+8)(x-2)}$

$\frac{x^2+13x-30-8x+6}{(x+8)(x-2)}$

$\frac{x^2+5x-24}{(x+8)(x-2)}$

$\frac{(x+8)(x-3)}{(x+8)(x-2)}=\frac{x-3}{x-2}$

3) $\frac{2x}{x+3}+\frac{5}{x}-4=\frac{18}{x^2+3x}$

$2x^2+5x+15-4x^2-12x=18$

$-2x^2-7x-3=0$

$2x^2+7x+3=0$

$(2x+1)(x+3)=0$

$2x+1=0 \quad x+3=0$

$x=-\frac{1}{2} \quad x=-3$ extraneous

4) a) $\ln e=1$

b) $\ln 1=0$

c) $\log\left(\frac{xy}{z}\right)$

d) $4^x=3$

$\ln 4^x=\ln 3$

$x\cdot\ln 4=\ln 3$

$x=\frac{\ln 3}{\ln 4}\approx .792$

5) $\sin\frac{7\pi}{4}=-\frac{\sqrt{2}}{2}$

6) a) $8^{2/3}=\left(\sqrt[3]{8}\right)^2=4$

b) $8^{-2/3}=\left(\sqrt[3]{8}\right)^{-2}=\frac{1}{4}$

7) $y+5=\frac{2}{3}(x-7)$