1. Rewrite all expressions with positive exponents and combine all terms with the same base. (aka "simplify").

    (a) $\sqrt[3]{x^{-2}}$

    (b) $b^{(n-1)}(3b^2)^n$

    (c) $\dfrac{6x^2 y}{\sqrt{4x^{-2}y^3}}$

2. For the function $f(x) = \frac{2}{x}$, write $f(3) - f(3+h)$ as a single fraction.

3. Expand $(\sqrt{x} - 3)(\sqrt{x} + 3)$.

4. Solve for x in the equation $1 + e^{2-x} = 4$.

5. Evaluate:

    (a) $\ln(e^{0.24}) + \ln(1)$

    (b) $\sin(7\pi/6)$

6. Solve $x^2 = 6 - x$ for x.

7. Write an equation of the line through the point $(1, 3)$ parallel to the line $8x + 2y = 17$.

8. Are the following statements true or false? Explain.

    a. $(\sqrt{5}a - b)^2 = 5a^2 + b^2$

    b. $\sqrt{9x^2 + 4} = 3x + 2$

    c. $\dfrac{a+2}{d+a} = \dfrac{a}{a} + \dfrac{2}{d} = 1 + \dfrac{2}{d}$

    d. $\dfrac{c^2 + \sqrt{6}}{c} = \dfrac{c^2}{c} + \dfrac{\sqrt{6}}{c} = c + \dfrac{\sqrt{6}}{c}$

9. Graph each function below and state its domain and range. Label your graphs.

(a) $h(x) = \sqrt{x+5}$

(b) $f(x) = \arctan(x)$

(c) $g(x) = -\ln(x-2)$

(d) $k(x) = 2\cos(3x)$

(e) $j(x) = 5 - e^x$

1. Find the domain of $H(t) = \sqrt{4 - 13t^2}$

2. Assume θ is in the first quadrant and $\sin\theta = \frac{1}{3}$. Find $\tan\theta$.

3. (BONUS:) For each equality below, find θ and explain why the answers are different.

   (a) $\cos(\theta) = 1/2$

   (b) $\arccos(1/2) = \theta$