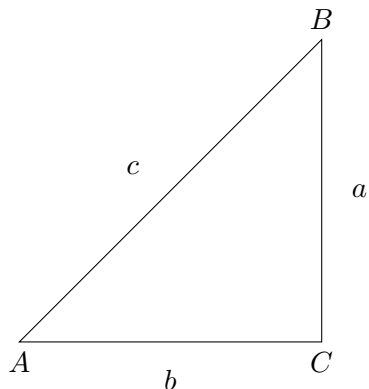


Written Homework Chapter 1 Review

30 problems for 60 points

1. Read Section 1.1. Use example problems as practice.
2. §1.1
 - (a) For the following functions, find the domain, range, any zeros, and any intercepts.
 - i. #14 $f(x) = \frac{x}{x^2-16}$
 - ii. #15 $f(x) = \sqrt{8x-1}$
 - iii. #20 $f(x) = 4|x+5|$
 - (b) #40 Find $f+g$, $f-g$, $f \cdot g$ and f/g for $f(x) = \sqrt{x}$ and $g(x) = x-2$ and determine the domain of each new function.
 - (c) #44 Find $f \circ g$ and $g \circ f$ for $f(x) = 2x+4$ and $g(x) = x^2-2$ and determine the domain of each new function.
 - (d) #51 The volume of a cube depends on the length of the sides s . Write a function for the volume of a cube, $V(s)$.
3. Read Section 1.2. Use example problems as practice.
4. §1.2
 - (a) For each pair of points, write the equation of the line, identify the slope of the line and whether the line is increasing, decreasing, vertical or horizontal.
 - i. #61 $(3, 5)$ and $(-1, 2)$
 - ii. #65 $(2, 4)$ and $(1, 4)$
 - (b) #69 Write the equation of the line with slope equal to $1/3$ through the point $(0, 4)$ and slope-intercept form (i.e. $y = mx + b$).
 - (c) #82 Determine the slope, m , and y -intercept, b , for the line $6x - 5y + 15 = 0$ and sketch its graph.
 - (d) #84 For the polynomial $f(x) = -3x^2 + 6x$, determine its degree, any zeros, any y -intercepts, and use the leading coefficient to determinant the end behavior.
 - (e) #89 Use the graph of $f(x) = x^2$ to sketch the graph of $g(x) = (x+3)^2 + 1$.
 - (f) #91 Use the graph of $f(x) = \sqrt{x}$ to sketch the graph of $g(x) = -\sqrt{x} - 1$.
 - (g) #95 For the piecewise defined function $f(x) = \begin{cases} x^2 - 3 & x < 0 \\ 4x - 3 & x \geq 0, \end{cases}$ find $f(-4)$, $f(0)$, $f(2)$, and sketch the graph.
5. Read Section 1.3. Use example problems as practice.
6. §1.3

- (a) #115 Convert -225° to radians.
- (b) #118 Convert $\pi/2$ to degrees.
- (c) #123 Evaluate $\cos(4\pi/3)$ without the aid of a calculator.
- (d) #130 In the right triangle below, $a = 4$ and $c = 7$. Determine the length of b and determine the value of the six trigonometric functions at angle A .



- (e) #155 Solve the equation $2\sin(\theta) - 1 = 0$ on the interval $0 \leq \theta < 2\pi$.
- (f) #169 Determine the amplitude and the period of the function $y = \frac{-1}{2}\sin(\frac{1}{4}x)$. Sketch.

7. Read Section 1.4. Use example problems as practice.

8. §1.4

- (a) #190 Find the inverse of the function $f(x) = \sqrt[3]{x-4}$ and determine the domain and range of the inverse.
- (b) #200 Use composition to determine whether or not $f(x) = 8x + 3$ and $g(x) = \frac{x-3}{8}$ are inverses.
- (c) #208 Evaluate $\cos^{-1}(\frac{-\sqrt{2}}{2})$ without the aid of a calculator.
- (d) #212 Evaluate $\cos(\tan^{-1}(\sqrt{3}))$ without the aid of a calculator.

9. Read Section 1.5. Use example problems as practice.

10. §1.5

- (a) #239 Sketch the graph of $g(x) = e^x + 2$. State the domain, range, and any asymptotes.
- (b) #247 Write the equation $\log_8 2 = \frac{1}{3}$ in equivalent exponential form.
- (c) #260 Write the equation $y = e^x$ in equivalent logarithmic form.
- (d) #265 Sketch the graph of $f(x) = \ln(x-1)$. State the domain, range, and any asymptotes.
- (e) #275 Use properties of logarithms to write $\ln\left(\frac{6}{\sqrt{e^6}}\right)$ as a sum, difference, and/or product of logarithms.
- (f) #280 Solve the equation $3^{x/14} = \frac{1}{10}$. Give an exact answer.
- (g) #288 Solve the equation $\ln(\sqrt{x+3}) = 2$ exactly.