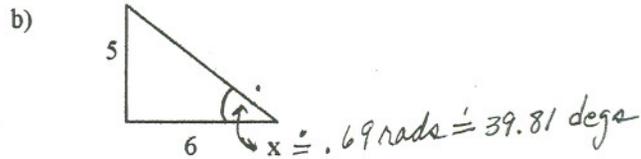
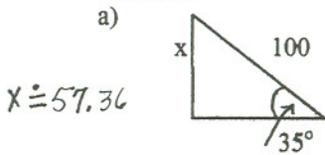


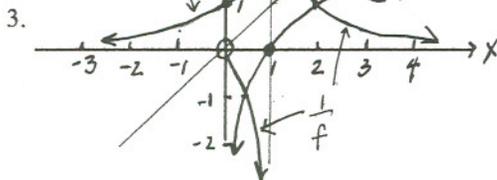
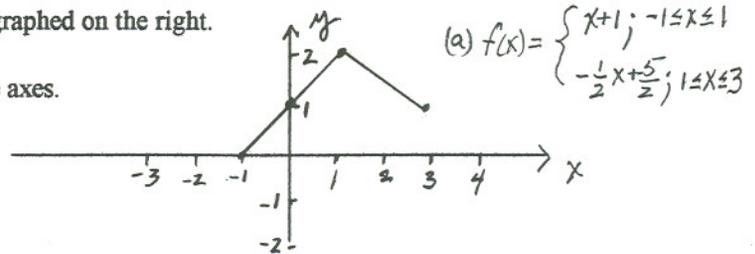
Calculus I Chapter 1 Practice Problems Name Solution Key

1. Use your calculator to find the value for x accurate to 2 decimal places for each of the following triangles:



2. a) Write equations defining the piecewise function graphed on the right.

b) Sketch the graph for $y = -f(x+1)$ on the same axes.



The graph of $y = f(x)$ is shown on the left.

a) Plot the graph of $y = f^{-1}(x)$ (inverse) and
b) Plot the graph of $y = 1/f(x)$ on the same axes.

4. If $g(x) = \begin{cases} 1-x, & x \leq 1 \\ x + \frac{1}{x}, & x > 1 \end{cases}$ and $f(x)$ is defined by the table

x		0		1		2		3
$f(x)$		3		2		1		5

then find a) $(g \circ f)(0) = 10/3$, b) $g(f(2)) = 0$, c) $(f \circ f)(1) = 1$, d) $(g+f)(2) = 3.5$

5. If $f(x) = \sqrt{1-x}$ and $g(x) = \cos(x)$

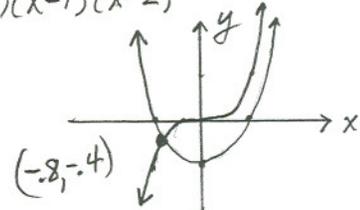
(a) find $(f \circ g)(x)$ and state its domain and range, and $\sqrt{1-\cos(x)}$; $D = (-\infty, \infty)$; $R = [0, \sqrt{2}]$
 (b) find $(g \circ f)(x)$ and state its domain and range. $\cos(\sqrt{1-x})$; $D = (-\infty, 1]$; $R = [-1, 1]$

6. Find the formula for and graph the 3rd degree polynomial satisfying

$f(-1) = f(1) = f(2) = 0$; $f(0) = -1$.

$f(x) = -\frac{1}{2}(x+1)(x-1)(x-2)$

7. Use your calculator to graph $y = x^3$ and $y = x^2 - 1$ on the same axes and determine any points of intersection to 1 decimal place.



8. (a) Find the exponential function of the form $y = Ca^x$ going through the points $(1, 2)$ and $(2, 1)$. $y = 4(\frac{1}{2})^x$

(b) A rancher has 100 cattle. The herd doubles every 3 years. How many cattle will there be in 9 (800) years? How many cattle will there be in t years? How many cattle will there be in 50 years? $\approx 10,403,192$
 $P(t) = 100 \cdot 2^{t/3}$

9. a) If $\log_a(x) = 2$ and $\log_a(y) = 3$, find $\log_a(x/y^2)$. $= -4$

b) Solve for x if $-10 = 2 + 5(1 - e^{-x})$.

$x \approx -1.22$