

Name _____

MT-A141-01

Exam One

Spring 1997

(1) 10 Points. Find the distance between the points $(-2, 3)$ and $(1, -5)$.

(2) 10 Points. If θ is an angle in standard position whose terminal side passes through the point $(-3, 5)$ find exact values for the six trigonometric functions at θ .

(3) 10 Points. Find an equation in general form for the straight line which passes through the points $(4, -1)$ and $(1, -5)$.

(4) 10 Points.

(a) Find the reference angle for θ if $\theta = 7\pi/6$.

(b) Find the angle θ if θ is an angle in standard position, the terminal side of θ is in quadrant II and the reference angle for θ is 71° . Assume that $0^\circ \leq \theta < 360^\circ$.

(5) 15 Points. Find **exact** values for the following. (Decimal approximations from your calculator will receive 0 points partial credit. You should expect your answers to be fractions, radical expressions, or multiples of π .)

(a) $\cos(\pi/6)$

(b) $\sec(\frac{5\pi}{4})$

(c) $\tan(300^\circ)$

(d) $\tan(\sin^{-1}(\frac{2}{3}))$

(e) Express in radians: $\sin^{-1}(-1)$

(6) 10 Points. Find $f^{-1}(x)$ if $f(x) = \frac{2x+5}{3x-1}$.

(7) 10 Points. Let $y = f(x)$ have the graph shown below.

- (a) Find the domain of this function.
- (b) Find the range of this function.
- (c) On which intervals is this function increasing?
- (d) Is this an even function, an odd function, or neither?
- (e) Is this function a one-to-one function?

(8) 15 Points. Use your calculator to approximate the following. Assume that all arguments of functions are measured values and round appropriately. When the value is an angle, express it in radian measure.

(a) $\sin(51.3^\circ)$

(b) $\cos(2.415)$

(c) $\cot(0.473)$

(d) $\tan^{-1}(3.4763)$

(e) $\sec^{-1}(1.819)$

(9) 10 Points. Graph the equation $y = 3 \cos(\pi x)$. Assume that x is measured in radians. Mark scales on the coordinate axes. You may use your calculator.