235 Quiz R   Name: _____ *Key*_____ V1

August 31, 2012

You have 30 minutes to complete this quiz. You do not need to show work.
When you are finished you may leave or you can stay to ask questions after the quiz.

1. Determine whether each of the following statements is true or false.

(handwritten: 4pts)

$$\text{T} \quad \boxed{\text{F}} \quad \sqrt{x^2 + 25} \overset{?}{=} x + 5$$

$$\boxed{\text{T}} \quad \text{F} \quad \text{If } |x - 4| < 0.5, \text{ then } x \in (3.5, 4.5).$$

(handwritten: (-1 until pts run out))

$$\text{T} \quad \boxed{\text{F}} \quad \sin(\tfrac{\pi}{2}) \overset{?}{=} \cos(\pi)$$

$$\text{T} \quad \boxed{\text{F}} \quad \log_{10}(x + 7) \overset{?}{=} (\log_{10} x)(\log_{10} 7)$$

$$\text{T} \quad \boxed{\text{F}} \quad \text{If } f(2) = 4 \text{ and } g(2) = 8 \text{ then } (f \circ g)(2) = 32.$$

2. The equation of the line with slope 6 that passes through the point $(3, 9)$ is:

(handwritten: 4 pts)

A) $y = 6x - 9$ B) $y = 6x - 3$ C) $y - 9 = 6(x - 3)$ D) none of these

(handwritten: (answers (A) and (C) are equiv. so either is ok ☺))

3. Circle ALL of the properties that are true about the graph of $f(x) = \frac{(3x+1)(x-2)}{(x+1)(2x-1)}$.

(handwritten: 4 pts)
(handwritten: (1 pt each part))

A) $f(x)$ has roots at $x = -\frac{1}{3}$, $x = 2$, $x = -1$, and $x = \frac{1}{2}$.

B) $f(x)$ has a y-intercept at $y = 2$.   *(handwritten: $\frac{(0+1)(0-2)}{(0+1)(0-1)} = 2$)*

C) $f(x)$ has a horizontal asymptote at $y = 0$.
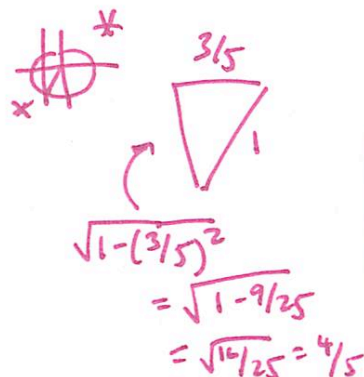
D) $f(x)$ has a vertical asymptote at $x = -1$.

4. If $\cos\theta = -\frac{3}{5}$ and $\tan\theta > 0$, then what is $\sin\theta$?

(handwritten: 4 pts (2 pts for (A)))

A) $\frac{4}{5}$ *(handwritten: half)*   B) $\frac{3}{5}$ C) $-\frac{4}{5}$ D) $-\frac{3}{5}$

(handwritten: 3/5 triangle, $\sqrt{1-(3/5)^2} = \sqrt{1 - 9/25} = \sqrt{16/25} = 4/5$)

5. If $f(x) = x^2 + x$, then which of the following is equal to $f(x + h)$?

(handwritten: 4 pts)

A) $x^2 + 2xh + h^2 + x + h$ C) $x^2 + x + h$

B) $x^2 + x + 2h$ D) $x^2 + h^2 + x + h$