= =1.5cm =10pt
=none
I have not violated the Honor Code in any way with regard to this work.

Math 105–Test I Feb. 1, 1994 =2

The domain of $f(x) = \frac{x}{(x^2-1)\sqrt{x-3}}$ is
$x > 3$ $x \geq 0,\ x \neq 1$ $x \neq 3,\ x \neq -1,\ x \neq 1$ $x < 3,\ x \neq -1,\ x \neq 1$ $x \geq 0$

The equation for the line through the point $(2,3)$ and parallel to $x - y = 1$ is
$x - y = -1$ $x + y = 5$ $y = x + 4$ $y = 3x + 2$ $y = 3x - 2$

If $f(x) = x^2 + 1$ and $g(x) = \sqrt{x-3}$, then
$g(f(x)) = \sqrt{x^2 - 2}$ $g(f(x)) = x - 2$ $g(f(x)) = (x^2+1)\sqrt{x-3}$ $g(f(x)) = x^2 + 1 + \sqrt{x-3}$ $g(f(x)) = x^2 + x - 2$

The expression $x^2 - 7x - 18$ can be factorized as
$(x-9)(x+2)$ $(x+9)(x-2)$ $(x-3)(x+6)$ $(x+3)(x-6)$ $(x+3)(x+6)$

If $f(x) = x^3 + \frac{8}{x^2}$, then $f'(2) =$
10 12 -2 $\frac{1}{3}$ does not exist

If $f(x) = \frac{1}{\sqrt{x^3}}$, then $f'(x) =$
$-\frac{3}{2\sqrt{x^5}}$ $-\frac{3}{2x^2}$ $\frac{3}{2x^2}$ $\frac{3}{4\sqrt{x^5}}$ $-\frac{3}{4\sqrt{x}}$

The curves $y = x^2 + 4$ and $y = -3x + 4$ meet at the point(s)
$(0,4)$ and $(-3,13)$ $(-1,5)$ and $(1,5)$ $\left(-\frac{4}{3},0\right)$ and $(-2,0)$ $(3,1)$ there are no points of intersection

Find the equation of the tangent line to the graph $y = 2\sqrt{x} + 5$ at a point whose y coordinate is $y = 7$.
$y = x + 6$ $y = \frac{5}{2}x + \frac{9}{2}$ $y = \frac{5}{2}x + 7$ $y = -\frac{5}{2}x + 7$ $y = -\frac{5}{2}x + \frac{19}{2}$

The expression $\left[(2x^2+2x+7)^{-2}\right]^{1/8}\sqrt{2x^2+2x+7}$ is the same as
$\left[2x^2+2x+7\right]^{1/4}$ $\frac{1}{\left[2x^2+2x+7\right]^{1/4}}$ $\frac{1}{\sqrt{2x^2+2x+7}}$ $\sqrt{2x^2+2x+7}$ $(2x+\sqrt{7})^{1/2}$

$\lim_{x\to 2} \frac{x^2+x-6}{x^2-4}$ is equal to
$\frac{5}{4}$ $-\frac{3}{2}$ does not exist 1 0

$\lim_{x\to\infty} \frac{5x^5+4x^4+3x^3+2x^2+x+8}{6x^5-5x^4-4x^3-3x^2-2x+9}$ is equal to
$\frac{5}{6}$ $\frac{8}{9}$ $-\frac{4}{5}$ $-\frac{3}{4}$ does not exist

$\lim_{x\to 4} \frac{\sqrt{x}-2}{x-4}$ is equal to
$\frac{1}{4}$ $\frac{1}{2}$ $-\frac{1}{4}$ $-\frac{1}{2}$ does not exist

If $f(x) = x^{99} - x^{98}$, then $\lim_{h\to 0} \frac{f(1+h)-f(1)}{h}$ is equal to
1 99 -98 $\frac{(1+h)^{99}-(1+h)^{98}}{h}$ does not exist

If $f(x) = \sqrt{x^{88}+9}$, then $f'(x) =$
$\frac{44x^{87}}{\sqrt{x^{88}+9}}$ $\frac{88x^{87}}{\sqrt{x^{88}+9}}$ $88x^{87}\sqrt{x^{88}+9}$ $(88x^{87}+9)\sqrt{x^{88}+9}$ does not exist

If $f(x) = (3x^4-1)^2$, then $f'(x) =$
$2(3x^4-1)$ $12x^3$ $24x^3(3x^4-1)$ $12x^3(3x^4-1)$ $72x^7$

$\lim_{x\to 1} \frac{3x^2+7x+2}{2x^2+3x-3} =$
6 $\frac{3}{2}$ $-\frac{2}{3}$ $\frac{7}{3}$ does not exist

Which equation of the following is perpendicular to the equation $x + 2y = 0$, and passes through the point $(1,7)$?
$y = 2x + 5$ $x - 2y = -13$ $y = -\frac{1}{2}x + \frac{15}{2}$ $y = \frac{1}{2}x + \frac{13}{2}$ $y = -2x + 9$

An equation for the tangent line to the curve $y = x^3 - 5x + 3$ at the point $(2,1)$ is
$y = 7x - 13$ $y = 2x - 3$ $y = 3x - 7$ $y = \frac{x}{3} + 3$ $y = 5x - 3$

The y-intercept of the line $4x + 5y + 6 = 0$ is

$\left(-\frac{3}{2}, 0\right)$

$\left(\frac{3}{2}, 0\right)$

$\left(0, \frac{6}{5}\right)$

$\left(0, -\frac{6}{5}\right)$

$(1, 2)$

How many real solutions does the equation $x^2 - 4x + 5 = 0$ have?

0 1 2 3 4