

MATH 1201 QUIZ #1

1. SEC 3.3 #13. $\frac{6x^3 + 13x^2 - 11x - 15}{3x^2 - x - 3} = \boxed{2x + 5}$

$$\begin{array}{r} 2x + 5 \\ 3x^2 - x - 3 \overline{) 6x^3 + 13x^2 - 11x - 15} \\ \underline{-6x^3 + 2x^2 + 6x} \\ 15x^2 - 5x - 15 \\ \underline{-15x^2 + 5x + 15} \\ 0 \end{array}$$

2. SEC 3.3 #20. $(5x^2 - 12x - 8) \div (x + 3) = \boxed{5x - 27 + \frac{73}{x+3}}$

$$\begin{array}{r} -3 \overline{) 5 - 12 - 8} \\ \underline{-15 81} \\ 5 - 27 73 \end{array}$$

3. SEC 3.3 #43. SOLVE $2x^3 - 5x^2 + x + 2 = 0$ GIVEN 2 IS A ZERO

$$\begin{array}{r} 2 \overline{) 2 - 5 1 2} \\ \underline{4 - 2 - 2} \\ 2 - 1 - 1 0 \end{array} \rightarrow 2x^2 - x - 1 = 0$$

SOLVE $(2x+1)(x-1) = 0$

$\boxed{x = -\frac{1}{2} \text{ OR } 1 \text{ AND ALSO } 2}$

4. SEC 3.4 #3. $f(x) = 3x^4 - 11x^3 - x^2 + 19x + 6$

RATIONAL ZEROS $\frac{p}{q} = \frac{\pm 1, \pm 2, \pm 3, \pm 6}{\pm 1, \pm 3} \rightarrow \boxed{\pm 1, \pm 2, \pm 3, \pm 6, \pm \frac{1}{3}, \pm \frac{2}{3}}$

5. SEC 3.4 #23. $f(x) = x^4 - 2x^3 - 5x^2 + 8x + 4 = 0$

① RATIONAL ZEROS $\frac{p}{q} = \pm 1, \pm 2, \pm 4$

② GRAPH: NOTICE $x = -2$ AND 2 ARE X-INT OR ZEROS

$$\begin{array}{r} -2 \overline{) 1 - 2 - 5 8 4} \\ \underline{-2 8 - 6 - 4} \\ 2 - 4 2 0 \end{array} \leftarrow \text{CUBIC}$$

$$\begin{array}{r} 2 \overline{) 1 - 4 3 2 0} \\ \underline{2 - 4 - 2} \\ 1 - 2 - 1 0 \end{array} \leftarrow \text{QUADRATIC}$$

SOLVE $x^2 - 2x - 1 = 0$

$$x = \frac{2 \pm \sqrt{4 - 4(1)(-1)}}{2}$$

$$= \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2}$$

$$= 1 \pm \sqrt{2}$$

SOLUTIONS ARE:

$\boxed{x = -2, 2, 1 \pm \sqrt{2}}$

3.3 #20
3.3 #43
3.4 #3
3.4 #23