

4 Classwork 4 MAT 1275 Professor Chiu

Name: _____

1. Divide and check at appropriate values of x and y.

Sol:

① "share" $5xy$ to all three terms

$$\frac{10x^3y^2 + 15x^2y - 5xy}{5xy}$$

$$= \frac{10x^3y^2}{5xy} + \frac{15x^2y}{5xy} - \frac{5xy}{5xy}$$

② Simplify each term

$$= \left(\frac{10}{5}\right) \cdot \left(\frac{x^3}{x}\right) \cdot \left(\frac{y^2}{y}\right) + \left(\frac{15}{5}\right) \cdot \left(\frac{x^2}{x}\right) \cdot \left(\frac{y}{y}\right) - \left(\frac{5}{5}\right) \cdot \left(\frac{x}{x}\right) \cdot \left(\frac{y}{y}\right)$$

$$= 2 \cdot x^2 \cdot y + 3 \cdot x \cdot 1 - 1 \cdot 1 \cdot 1$$

$$= 2x^2y + 3x - 1$$

2. Divide $3x^2 + 11x - 4$ by $3x - 1$

① " $3x - 1$ " is a two-term divisor \Rightarrow long division

$$\begin{array}{r}
 \quad \quad \quad x+4 \\
 3x-1 \overline{) 3x^2+11x-4} \\
 \underline{-(3x^2-x)} \\
 12x-4 \\
 \underline{-(12x-4)} \\
 0
 \end{array}$$

$$\begin{array}{r}
 3x-1 \\
 \times \boxed{3x^2 \quad -x}
 \end{array}$$

$$\begin{array}{r}
 3x-1 \\
 4 \boxed{12x \quad -4}
 \end{array}$$

$$\Rightarrow 3x^2 + 11x - 4 = (3x - 1)(x + 4)$$