Divide: 1st term by 1st term
Multiply: Distribute top to outside
Subtract: Keep, Change, Change (distribute the negative)
Bring Down

Name Schlansky
Mr. Schlansky

Date _____
Algebra 2

*Put 0 as a placeholder if there's a missing term

Dividing Polynomials With Long Division

Divide each of the following polynomials

1. $\dfrac{6x^3+19x^2+11x-6}{3x-1}$

$2x^2+7x+6$

$3x-1 \overline{)\,6x^3+19x^2+11x-6}$

$\pm 6x^3 \pm 2x^2$

$21x^2+11x$

$\pm 21x^2 \pm 7x$

$18x-6$

$\pm 18x \pm 6$

0

2. $\dfrac{15x^3+29x^2-23x-21}{5x+3}$

$3x^2+4x-7$

$5x+3 \overline{)\,15x^3+29x^2-23x-21}$

$\pm 15x^3 \mp 9x^2$

$20x^2-23x$

$\pm 20x^2 \mp 12x$

$-35x-21$

$\mp 35x \pm 21$

0

3. $\dfrac{2x^3-3x^2+2x+5}{x-5}$

$2x^2+7x+37+\frac{190}{x-5}$

$x-5 \overline{)\,2x^3-3x^2+2x+5}$

$\pm 2x^3 \pm 10x^2$

$7x^2+2x$

$\pm 7x^2 \pm 35x$

$37x+5$

$\pm 37x \pm 185$

190

4. $\dfrac{9x^2-2}{3x+1}$ (+0x)

$3x-1-\frac{1}{3x+1}$

$3x+1 \overline{)\,9x^2+0x-2}$

$\pm 9x^2 \mp 3x$

$-3x-2$

$\mp 3x \pm 1$

-1

5. $\dfrac{2x^3 - x - 2}{x - 4}$

$+0x^2$

$2x^2+8x+31+\dfrac{122}{x-4}$

$x-4 \;\overline{)\; 2x^3+0x^2-x-2}$

$\pm 2x^3 \pm 8x^2$

$8x^2 - x$

$\pm 8x^2 \pm 32x$

$31x - 2$

$\pm 31x \pm 124$

122

6. $\dfrac{4x^3 + 10x^2 + 10x - 1}{2x - 3}$

$2x^2+8x+17+\dfrac{50}{2x-3}$

$2x-3 \;\overline{)\; 4x^3+10x^2+10x-1}$

$\pm 4x^3 \pm 6x^2$

$16x^2 + 10x$

$\pm 16x^2 \pm 24x$

$34x - 1$

$\pm 34x \pm 51$

50

7. $\dfrac{4x^3 + 5x + 10}{2x + 3}$

$+0x^2$

$2x^2-3x+7-\dfrac{11}{2x+3}$

$2x+3 \;\overline{)\; 4x^3+0x^2+5x+10}$

$\pm 4x^3 \mp 6x^2$

$-6x^2+5x$

$+16x^2+9x$

$14x+10$

$\pm 14x \mp 21$

-11

8. $\dfrac{4x^4 + 10x^3 - 2x^2 + x + 2}{2x + 1}$

$2x^3+4x^2-3x+2$

$2x+1 \;\overline{)\; 4x^4+10x^3-2x^2+x+2}$

$\pm 4x^4 \mp 2x^3$

$8x^3 - 2x^2$

$\pm 8x^3 \mp 4x^2$

$-6x^2 + x$

$+10x^2+3x$

$+0x^2$

$4x+2$

$\pm 4x \mp 2$

0

9. $\dfrac{6x^4 - 8x^3 - 12x^2 + 13x + 7}{3x - 4}$

$2x^3+0x^2-4x-1+\dfrac{3}{3x-4}$

$3x-4 \;\overline{)\; 6x^4-8x^3-12x^2+13x+7}$

$\pm 6x^4 \mp 8x^3$

$0x^3 - 12x^2$

$\pm 0x^3 \mp 0x^2$

$-12x^2+13x$

$+12x^2-16x$

$-3x+7$

$\mp 3x \mp 4$

3

10. $\dfrac{-12x^4 + 2x^3 + 16x - 5}{x^2 + 2x - 1}$

$-12x^2+26x-64+\dfrac{170x-69}{x^2+2x-1}$

$x^2+2x-1 \;\overline{)\; -12x^4+2x^3+0x^2+16x-5}$

$+12x^4+24x^3-12x^2$

$26x^3-12x^2+16x$

$-26x^3-52x^2+26x$

$-64x^2+42x-5$

$+64x^2+128x-64$

$170x-69$