Name Key Date Hour

Section 6.3 – Dividing Polynomials *DAY 2*

Algebra 2 Trig

Simplify!

1) $\frac{20c^4d^2f - 16cf + 4cdf}{4cdf} = \frac{20c^4d^2f}{4cdf} - \frac{16cf}{4cdf} + \frac{4cdf}{4cdf} = \boxed{5c^3d - \frac{4}{d} + 1}$

Divide! (*long-division*)

2) $\frac{5x^3 - 13x^2 + 10x - 8}{x - 2}$

$$x-2 \;\overline{)\; 5x^3 - 13x^2 + 10x - 8}$$

$5x^2 - 3x + 4$

$5x^3 - 10x^2$

$-3x^2 + 10x$

$-3x^2 + 6x$

$4x - 8$

$4x - 8$

0

POSSIBLE ANSWERS:

If I ask for...

Divide: $5x^2 - 3x + 4$

Factor: $(x-2)(5x^2 - 3x + 4)$

Divide using SYNTHETIC DIVISION

3) $\frac{5x^3 - 13x^2 + 10x - 8}{x - 2}$

$x - 2 = 0$

$x = 2$

↳ 2 (shelf)	5	−13	10	−8
+	0	10	−6	8
	5	−3	4	0
	x^2	x^1	C	R

Divide: $5x^2 - 3x + 4$

Factor: $(x-2)(5x^2 - 3x + 4)$

Try a few more using SYNTHETIC DIVISION……

4) $\frac{x^3-9x^2+23x-15}{x-5}$

$x-5=0$
$x=5$

$5 \mid 1 \;\; -9 \;\; 23 \;\; -15$
$+ \;\; 0 \;\; 5 \;\; -20 \;\; 15$
$1 \;\; -4 \;\; 3 \mid 0$

$(x-5)(x^2-4x+3)$

5) $\frac{x^3+7x^2-49}{x+5}$

← placeholder!

$-5 \mid 1 \;\; 7 \;\; 0 \;\; -49$
$+ \;\; 0 \;\; -5 \;\; -10 \;\; 50$
$1 \;\; 2 \;\; -10 \mid 1$
$x^2 \;\; x \;\; c \;\; R$

$(x+5)(x^2+2x-10+\frac{1}{x+5})$

6) $\frac{x^3+8}{x+2}$

$-2 \mid 1 \;\; 0 \;\; 0 \;\; 8$
$+ \;\; 0 \;\; -2 \;\; 4 \;\; -8$
$1 \;\; -2 \;\; 4 \mid 0$

$(x+2)(x^2-2x+4)$

7) $\frac{6x^3+2x^2+11x-10}{3x-2}$

$3x-2=0$
$3x=2$
$x=\frac{2}{3}$ ← shelf!

$\frac{2}{3} \mid 6 \;\; 2 \;\; 11 \;\; -10$
$+ \;\; 0 \;\; 4 \;\; 4 \;\; 10$
$6 \;\; 6 \;\; 15 \mid 0$
R

divide by denominator! (3)
$2 \;\; 2 \;\; 5$

$(3x-2)(2x^2+2x+5)$

8) $\frac{6x^3+5x^2+9}{2x+3}$ ← Placeholder

$2x+3=0$
$2x=-3$
$x=\frac{-3}{2}$ ← shelf!

$\frac{-3}{2} \mid 6 \;\; 5 \;\; 0 \;\; 9$
$+ \;\; 0 \;\; -9 \;\; 6 \;\; -9$
$6 \;\; -4 \;\; 6 \mid 0$
R

divide by 2
$3 \;\; -2 \;\; 3$

$(2x+3)(3x^2-2x+3)$