

§6.6 #s 2, 5, 13, 25, 27, 32, 33, 34, 39, 44, 45

§6.5 #s 1, 4, 5, 6, 9, 12, 15, 19, 22, 30

(6 Test scheduled for Wed, 11/3/10

§6.4 #s 11, 17

Solus thru 6.5 are up

6.6, 6.7 coming soon.

① $(2x^2 + 3x - 2) \div (2x + 4)$

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

$x-c \rightarrow 2(x+2)$

① Divide by $x+2$
 ② Then divide by 2
 IF You wanted to use synthetic division

$\frac{2x^2}{2x} = x$
 $x(2x+4) = 2x^2+4x$
 $\frac{-x}{2x} = -\frac{1}{2}$
 $-\frac{1}{2}(2x+4) = -x-2$
 $-\frac{1}{2} \cdot 2x = -\frac{1}{2} \cdot \frac{2x}{1}$

Interpret:

$2x^2 + 3x - 2 = (x - \frac{1}{2})(2x + 4) + 0$

Synthetically

① $-2 \mid \begin{array}{ccc} 2 & 3 & -2 \\ & -4 & 2 \\ \hline 2 & -1 & 0 \\ x' & c & r \end{array}$

$2x - 1$

② $\frac{2x-1}{2} = \frac{2x}{2} - \frac{1}{2} = x - \frac{1}{2}$ Same answer

$$(17) \quad (3x^5 - x^3 + 4x^2 - 12x - 8) \div (x^2 - 2)$$

$$\begin{array}{r}
 3x^3 + 5x + 4 \quad r - 2x \\
 x^2 - 2 \overline{) 3x^5 + 0x^4 - x^3 + 4x^2 - 12x - 8} \\
 \underline{-(3x^5 - 6x^3)} \\
 5x^3 + 4x^2 - 12x - 8 \\
 \underline{-(5x^3 - 10x)} \\
 4x^2 - 2x - 8 \\
 \underline{-(4x^2 - 8)} \\
 -2x
 \end{array}$$

$$\frac{3x^5}{x^2} = 3x^3$$

$$\frac{5x^3}{x^2} = 5x$$

$$\frac{4x^2}{x^2} = 4$$

$$4(x^2 - 2) = 4x^2 - 8$$

Book Says:

$$\frac{3x^5 - x^3 + 4x^2 - 12x - 8}{x^2 - 2} = 3x^3 + 5x + 4 - \frac{2x}{x^2 - 2}$$

I'm interpreting it this way:

$$3x^5 - x^3 + 4x^2 - 12x - 8 = (x^2 - 2)(3x^3 - 5x + 4) - 2x$$

Dividend = Divisor · Quotient + Remainder

S6.5 #15

What's the domain?

$$\frac{x^2-23}{2x^2-5x-3} + \frac{2}{x-3} = \frac{-1}{2x+1}$$

$$\left\{ x \mid x \neq 3 \text{ and } x \neq -\frac{1}{2} \right\}$$

$$\begin{aligned} 2x+1 &= 0 \\ 2x &= -1 \\ x &= -\frac{1}{2} \end{aligned}$$

$$LCD = (2x+1)(x-3)$$

$$(2x+1)(x-3)$$

$$= 2x^2 - 6x + 1x - 3$$

$$= 2x^2 - 5x - 3$$

$$\frac{x^2-23}{\cancel{(2x+1)}\cancel{(x-3)}} \cdot \frac{\cancel{(2x+1)}\cancel{(x-3)}}{1} + \frac{2}{\cancel{x-3}} \cdot \frac{\cancel{(2x+1)}\cancel{(x-3)}}{1} = \frac{-1}{\cancel{2x+1}} \cdot \frac{\cancel{(2x+1)}\cancel{(x-3)}}{1}$$

$$x^2-23 + 2(2x+1) = -1(x-3)$$

$$x^2-23 + 4x+2 = -x+3$$

$$x^2 + 4x - 21 = -x + 3$$

$$+ x - 3 = +x - 3$$

$$x^2 + 5x - 24 = 0$$

$$x^2 + 8x - 3x - 24 = 0$$

$$x(x+8) - 3(x+8) = 0$$

$$(x+8)(x-3) = 0$$

$$x+8=0 \quad \text{OR} \quad x-3=0$$

$$x=-8 \quad \text{OR} \quad x=3$$

$$x \in \{-8, 3\}$$

Factors of -24
that add up to
+5

$$(8)(-3) = -24$$

$$8-3 = 5$$

Final Ans:
 $x \in \{-8\}$

✗

6.5 Friday