Name: Selected Answers

Period:

HW 2-4

Dividing Polynomials

Given a polynomial divisor and dividend, use long division to find the quotient and remainder.

1. $(18x^3 - 3x^2 + x - 1) \rceil (x^2 - 4)$

2. $(6x^4 + x^3 - 9x + 13) \rceil (x^2 + 8)$

$\boxed{6x^2 + x - 48 \quad R: -17x + 397}$

$x^2 + 0x + 8 \,\rceil\, 6x^4 + x^3 + 0x^2 - 9x + 13$

$-6x^4 \mp 0x^3 \mp 48x^2$

$x^3 - 48x^2 - 9x$

$-x^3 \mp 0x^2 \mp 8x$

$-48x^2 - 17x + 13$

$+48x^2 \mp 0x + 384$

$-17x + 397$

3. $(x^3 + 25x^2 + 100x) \rceil (x + 20)$

Given a polynomial *p(x)*, use synthetic division to divide by *x – a* and obtain the quotient and the (nonzero) remainder.

4. $(7x^3 - 4x^2 - 400x - 100) \rceil (x - 8)$

5. $(2.5x^3 + 6x^2 - 5.5x - 10) \rceil (x + 1)$

+8	7	-4	-400	-100
+	↓	56	416	128
	7	52	16	28

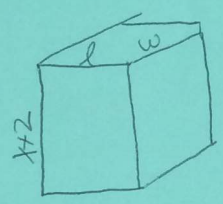
$\boxed{7x^2 + 52x + 16 \quad R: 28}$

6. $(3x^3 - 11x^2 - 56x - 50) \div (x+4)$

-4	3	-11	-56	-50
+	↓	-12	92	-144
	3	-23	36	-194

$$\boxed{3x^2 - 23x + 36 \quad R: -194}$$

7. Given that the height of a rectangular prism is $x+2$ and the volume is $x^3 - x^2 - 6x$, write an expression that represents the area of the top face of the prism.



$V = l \cdot w \cdot h = x^3 - x^2 - 6x$

$l \cdot w \cdot (x+2) = x^3 - x^2 - 6x$

$lw = (x^3 - x^2 - 6x) \div (x+2) = ?$

You finish it!

8. Explain the error: Two students used synthetic division to divide $3x^3 - 2x - 8$ by $x - 2$. Determine which solution is correct. Find the error in the other solution.

A.	B.
2 | 3 0 −2 −8 6 12 20 3 6 10 12	2 | 3 0 −2 −8 −6 12 −20 3 −6 10 −28

Review

Graph the function $f(x) = \begin{cases} (x+2)^2, & x < 0 \\ -1, & x > 0 \end{cases}$