HW 2-4
Secondary Math III

Name: Selected Answers
Period:

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

1. $(x^2+14x+38) \div (x+8)$

2. $(x^2-74) \div (x-8)$

$x+8$ R: -10

$x-8 \;|\; x^2+0x-74$

$-x^2+8x$ ↓

$8x-74$

$-8x+64$

-10

3. $(x^3+7x^2+14x+3) \div (x+2)$

x^2+5x+4 R: -5

$x+2 \;|\; x^3+7x^2+14x+3$

$-x^3 \mp 2x^2$ ↓

$5x^2+14x$

$-5x^2 \mp 10x$

$4x+3$

$-4x \mp 8$

-5

4. $(x^3-13x^2+40x+18) \div (x-7)$

5. $(3x^3+34x^2+89x+75) \div (x+8)$

6. $(8x^3-55x^2+44x-12) \div (x-6)$

$8x^2-7x+2$ R: 0

$x-6 \;|\; 8x^3-55x^2+44x-12$

$-8x^3+48x^2$ ↓

$-7x^2+44x$

$+7x^2 \mp 42x$

$2x-12$

$-2x+12$

0

Given a polynomial *p(x)*, use *synthetic division* to divide by *x – a* and obtain the quotient and the (nonzero) remainder. Write the result in the form *p(x) = (x – a)(quotient) + remainder.*

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

8. $(8x^4-28.5x^2-9x+10)\,|\,(x+0.25)$

-0.25 | 8 0 −28.5 −9 10

+ ↓ −2 0.5 7 0.5

8 −2 −28 −2 | 10.5 R

$8x^3-2x^2-28x-2$ R: 10.5

9. $(2.5x^3+6x^2-5.5x-10)\,|\,(x+1)$

-1 | 2.5 6 −5.5 −10

+ ↓ −2.5 −3.5 9

2.5 3.5 −9 −1

$2.5x^2+3.5x-9$ R: −1

10. $(3x^3-11x^2-56x-50)\,|\,(3x+4)$

11. $(x^3-13x^2+40x+18)\,|\,(x-7)$

12. $(x^3+6x^2+9x-5)\,|\,(x+1)$

-1 | 1 6 9 −5

+ ↓ −1 −5 −4

1 5 4 | −9

x^2+5x+4 R: −9

13. 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

Try it yourself! Which is right? Why is the other one wrong?