Name: **Key**   Date: _____ Period: _____

## 5.6 – 5.7 Dividing Polynomial Functions DAY TWO CYU

| CONCEPTS | BASIC | INTERMEDIATE | ADVANCED |
|---|---|---|---|
| Long Division | 1 | 2 | 3 |
| Synthetic Division | 4, 5 | 6, 7 | 8 - 10 |

*Divide the polynomials using <u>long division</u>. Show all work for full credit.*

1. $(x^3 + x^2 + x + 2) \div (x^2 - 1)$

2. $(7x^3 + x^2 + x) \div (x^2 + 1)$

3. $(4x^4 + 5x - 4) \div (x^2 - 3x - 2)$

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

2. $7x + 1 \text{ R.} -6x - 1$

3. $4x^2 + 12x + 44 + \dfrac{161x + 84}{x^2 - 3x - 2}$

*Divide the polynomials using <u>synthetic division</u>. Show all work for full credit.*

4. $(x^2 + 8x + 1) \div (x - 4)$

5. $(4x^2 - 13x - 5) \div (x - 2)$

4. $x + 12 \text{ R.} 49$

5. $4x - 5 - \dfrac{15}{x-2}$

6. $(2x^2 - x + 7) \div (x + 5)$

$$2x - 11 + \frac{62}{x+5}$$

7. $(x^3 - 4x + 6) \div (x + 3)$

$$x^2 - 3x + 5 \;\; R.\,{-9}$$

8. $(3x^3 - 5x^2 - 2) \div (x - 1)$

$$3x^2 - 2x - 2 \;\; R.\,{-4}$$

9. $(x^4 + 4x^3 + 16x - 35) \div (x + 5)$

$$x^3 + x^2 - 2x + 1 \;\; R.\,{-6}$$

10. **COMPARING METHODS** The profit P (in millions of dollars) for a DVD manufacturer can be modeled by $P = -6x^3 + 72x$, where x is the number (in millions) of DVDs produced. Use synthetic division to show that the company yields a profit of \$96 million when 2 million DVDs are produced. Is there an easier method? Explain.

$$R = 96 \qquad P(2) = 96 \qquad \text{Substitute} \quad x = 2$$

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**CYU Reflection:** *How far can you go: basic, intermediate, or advanced?*
**Rate your mastery level!**
How confident are you with the skills this CYU covered? Circle the score you would give yourself.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Basic | | Intermediate | | | Advanced | | Solved ALL! |