

Name:

6.3 Synthetic Division Worksheet

1. Use synthetic division to divide the following polynomials. Express in the form $P = DQ + R$

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

c) $\frac{x^4 - x^2 + 7}{x + 1}$

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

d) $\frac{2x^4 - x^5 - x^3 + 4x}{x - 3}$

2. Find the remainder when $f(x) = x^3 - 3x^2 + x + 8$ is divided by $x - 2$. Compare this with $f(2)$

3. Find the remainder when $f(x) = 2x^3 + 3x^2 - 5x + 12$ is divided by $x + 3$. Compare this with $f(-3)$

4. Divide $9x^3 + 18x^2 - 13x + 5$ by $(3x - 1)$ using synthetic division and write the division statement in the form $P = DQ + R$

5. Determine p , q , and r in the partially completed synthetic division below in which the divisor is $x - 1$.

2	3	q	1
2	p	7	r

5. Determine m and n in the partially completed synthetic division below in which the divisor is $x + 2$.

2	m	-3	n
	-4		m

Divide $4x^3 + 11x^2 - 14x - 9$ by $(4x + 3)$ using synthetic division and write the division in the form $P = DQ + R$.