

Polynomial (4.1-4.3)

Name:

Per:

1. (Section 4.1) Find the vertex(Complete the square technique or $-\frac{b}{2a}$ formula)

$$Y(x) = -\frac{1}{2}x^2 + 24x - 200$$

3. (Section 4.3) Ratios of polynomials are of 4 types:
Let n be the degree of the numerator
Let m be the degree of the denominator

(a) $[n < m] \frac{5x^2 - 15}{x^3 - 8}$

(b) $[n = m] \frac{3x^2 - 21}{6x^2 - 2x}$

(a) Equation of the axis of symmetry

(b) Range

2. (Section 4.2) Consider the function

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

(a) List each real zero and its multiplicity

zero	multiplicity

(b) Graph f

(c) $[n = m + 1] \frac{x^4 - 11x^2 - 18x - 8}{3x^3 + 5x^2}$
Hint $x^4 - 11x^2 - 18x - 8 = (x + 1)^2(x + 2)(x - 4)$

(d) $[n > m + 1] \frac{x^6 - x^3 - 6}{x^5 - 1}$