

Name: _____

Polynomials

COVID Test I

1. Divide $3x^4 + 8x^2 + 5x - 4$ by $x + 2$ using long division. Check your answer with synthetic division and write a division statement. [2 marks]
2. If a polynomial function $f(x) = 8x^3 + ax^2 + 16x + 3$ is divided by $4x - 3$, the quotient is $2x^2 + bx + 1$ with remainder 6. Find a and b . [3 marks]
3. When $p(x) = x^3 - kx^2 + 5x - 6$ is divided by $x - 1$, the remainder is 4. Find the remainder when $p(x)$ is divided by $x - 3$. [2 marks]
4. Given $p(x) = x^5 + mx^4 + 7x^3 + 3mx^2 - 9x + 14$ has an x -intercept of 2, find m . [2 marks]
5. Solve for x : $(x^2 + 4x)^2 - 9(x^2 + 4x) - 36 = 0$. [3 marks]
6. The graph of a cubic polynomial $y = C(x)$ is shown below. [2 marks]
 - a. Solve for x : $C(x) \leq 0$.
 - b. Write an equation for x $C(x) = 0$.
7. Given: $x^3 - \frac{40}{3}x - \frac{4}{3}x^4 \geq -11x^2 + 4$ [6 marks]
 - a. List all possible rational roots of the polynomial
 - b. Solve and graph the solution set
 - c. Find the y -intercept, then sketch the polynomial.

