

# Mock Test 1 Solutions

## Part A: Knowledge and Understanding

1a) false

1b) true

1c) true

1d) true

1e) false

2)  $f(x) = x^9 \quad a = 1$

3)  $h'(x) = p'(x)q(x)r(x)s(x) + p(x)q'(x)r(x)s(x) + p(x)q(x)r'(x)s(x) + p(x)q(x)r(x)s'(x)$

4)  $(3x + 1)^3(x^3 - x + 1)^4(57x^3 + 15x^2 - 27x + 7)$

5)  $f'(x) = \frac{[6x(1-2x^3) + 3x^2(-6x^2)](1+x)^3 - [3x^2(1-2x^3)]3(1+x)^2}{(1+x)^6}$

6)  $\frac{dy}{dx} = 0$

## Part B: Application

1)  $x = 3$  or  $-7$

2)  $y = 60x - 236$

3) 4 m/s

4) 208

## Part C: Thinking

1)  $(12x^2)f(3x^2 - 2x + 1) + (4x^3)(6x - 2)f'(3x^2 - 2x + 1)$

2)  $a = 2 \quad b = -2 \quad c = -40$

3) see video solutions

# Mock Test 1 Solutions

## Part D: Communication

- 1) always true
- 2) vertical asymptote, vertical tangent, cusp, corner, etc
- 3) When you have a composite function. If  $f(x) = g(h(x))$ , then  $f'(x) = g'(h(x)) * h'(x)$
- 4) product rule or expand and differentiate each term using power rule.