

Unit 5 Extra Test Practice

Honors ICM

Name: _____

Period: _____

Remember to show work for credit! 😊

1. The position of a particle at time t sec is $s = t^3 - 8t^2 + 7t$ meters.

(a) Find the instantaneous velocity $t = 3$ seconds.

(b) Find the acceleration for each time the particle's velocity is zero.

2. A projectile is shot upward from the surface of earth with an initial velocity of 120 meters per second. The position equation is $s(t) = -4.9t^2 + 150t$

a. What is the projectile's velocity after 5 seconds?

b. What is the projectile's acceleration after 5 seconds?

Find the derivative. Express answers as positive, whole exponents or radicals.

3. $f(x) = 7x^{-2} + \sqrt{3x^5 - x^2}$

4. $f(x) = (3x^2 - 2x + 1)(5x - 6)$

5. $f(x) = x\sqrt{3x - 7}$

6. $f(x) = \frac{3}{x^2} + 5bx^2 - \frac{x}{8} - 7c + 4$

7. $g(x) = 14x^{\frac{3}{4}} + \sqrt[3]{4x^2 - 7x}$

8. $g(x) = \frac{\sqrt[3]{x^2}}{6x - 3}$

Extra Practice before Quiz

Name: _____

Unit 5 ICM Derivatives

Period: _____

Show your work for credit.

1. Find the derivative of $f(x) = \sqrt{x-7}$. You must show all work using the limit definition. If you find the derivative using the power rule only, you will NOT receive credit!!

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2. Using the Power Rule, find the derivative of $f(x)$. Express your answer using positive whole exponents and radicals.

$$f(x) = 3\sqrt{x} - \frac{7}{x^4} + 6\sqrt[4]{x^3} + 8x - 11$$

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3. Find the equation of the line tangent to the function using the given info. Show your work.

$$f(x) = 6x^3 + 4 - x \text{ when } x = 2$$
