Name _____ Class _____ Date _____

Reteaching 13-4 Polynomials

The polynomial $d = 4.9t^2 - vt$ gives the distance d in meters an object has fallen after t seconds if it is thrown down with an initial velocity v. A rock is thrown from the top of a cliff with an initial velocity of 2 m/s. The rock takes 7.3 s to reach the bottom. To the nearest meter, how tall is the cliff?

$d = 4.9t^2 - vt$	Substitute 7.3 for t and 2 for v.
$d = 4.9(7.3)^2 - 2(7.3)$	
$d = 4.9(53.29) - 2(7.3)$	Evaluate using the order of operations. Evaluate the exponent first.
$d = 261.121 - 14.6$	Multiply.
$d = 246.521$	Subtract.
$d \approx 247$ meters	Round.

Use the polynomial $d = 4.9t^2 - vt$ to find the distance each object falls for the given time and initial velocity. Round to the nearest meter.

1. $t = 7$ s, $v = 3$ m/s

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2. $t = 6$ s, $v = 3.5$ m/s

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3. $t = 5.7$ s, $v = 2$ m/s

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4. $t = 6.4$ s, $v = 2.8$ m/s

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Evaluate each polynomial for $x = -2$ and $y = 3$.

5. $x^2 - 2x - 5$

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6. $xy + y^2 + 2x$

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7. $9 - 3x^2$

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8. $x^2 - 2xy - y^2$

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9. The polynomial $S = 2\pi r^2 + 2\pi rh$ gives the surface area of a cylinder with radius r and height h. Find the surface area of a cylinder with radius 8 cm and height 14 cm, to the nearest cm^2.

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