Name _____ Date _____ Class _____

Practice B

Finding Real Roots of Polynomial Equations

Solve each polynomial equation by factoring.

1. $9x^3 - 3x^2 - 3x + 1 = 0$

2. $x^5 - 2x^4 - 24x^3 = 0$

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3. $3x^5 + 18x^4 - 21x^3 = 0$

4. $-x^4 + 2x^3 + 8x^2 = 0$

_____

Identify the roots of each equation. State the multiplicity of each root.

5. $x^3 + 3x^2 + 3x + 1 = 0$

6. $x^3 + 5x^2 - 8x - 48 = 0$

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Identify all the real roots of each equation.

7. $x^3 + 10x^2 + 17x = 28$

8. $3x^3 + 10x^2 - 27x = 10$

_____

Solve.

9. An engineer is designing a storage compartment in a spacecraft. The compartment must be 2 meters longer than it is wide and its depth must be 1 meter less than its width. The volume of the compartment must be 8 cubic meters.

  a. Write an equation to model the volume of the compartment.

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  b. List all possible rational roots. _____

  c. Use synthetic division to find the roots of the polynomial equation. Are the roots all rational numbers?

_____

  d. What are the dimensions of the storage compartment? _____

Holt Algebra 2