College Algebra	**Name:** _____
Study Guide 11	**Class:** _____
Due Date: _____	**Score:** _____

No Work $\Leftrightarrow$ No Points

Use Pencil Only $\Leftrightarrow$ Be Neat & Organized

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1. (2 points) Divide: $\dfrac{24x^{10} - 16x^2}{-4x^3}$

1. _____

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2. (3 points) Divide using long division: $\dfrac{4x^2 - 5x - 26}{x + 2}$

2. _____

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3. (3 points) Divide using long division: $\dfrac{6x^3 - 17x^2 + 14x - 2}{2x - 3}$

3. _____

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4. (3 points) Divide: $\dfrac{25x^4y - 15x^3y^2 - 10x^2y^3}{10x^2y^3}$

4. _____

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5. (3 points) Divide using long division: $\dfrac{4x^3 - 6x + 2}{x - 1}$

5. _____

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6. (4 points) Find an expression for the area of a triangle with base $x^2 + 3x + 9$, and height of $2x - 6$.

6. _____

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7. (4 points) Find an expression for the length of a rectangle with the area of $3x^3 - 14x^2 + 2x + 4$, and width of $3x - 2$.

7. _____

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8. (4 points) Find an expression for the width of a rectangle with the area of $12x^3 + 16x^2 - 7x - 6$, and length of $2x + 1$.

8. _____

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9. (3 points) Divide using synthetic division: $\dfrac{x^2 - 5x - 6}{x - 2}$

9. _____

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10. (3 points) Divide using synthetic division: $\dfrac{6x^3 - 17x^2 - 10x + 13}{x + 1}$

10. _____

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11. (3 points) Divide using synthetic division: $\dfrac{4x^3 - 10x + 55}{x - 3}$

11. _____

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12. (3 points) Divide using synthetic division: $\dfrac{x^4 + 3x - 6x^2 - 1}{x - 2}$

12. _____

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13. Consider $f(x) = x^4 - 13x^2 + 36$**.**

(a) (3 points) Use synthetic division to find $g(x) = \dfrac{f(x)}{x - 3}$**.**

(a) _____

(b) (3 points) Use synthetic division to find $h(x) = \dfrac{g(x)}{x + 2}$**.**

(b) _____

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14. (3 points) Use synthetic division to show $x - 2$ **is a factor of** $2x^2 - 3x - 2$**.**

14. _____

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15. (3 points) Use synthetic division to show $x + 3$ **is a factor of** $x^3 + 3x^2 - x - 3$**.**

15. _____
