Name: _____
Place your answer in the spaces provided. You must show your work to receive credit.

(6 pts) 1. Subtract. $\left(5y^2 - 2y - 9y^3\right) - \left(2y^2 - y - 7y^3\right)$

$$\begin{array}{|c|}\hline \\ \\ \\ \\ \hline \end{array}$$

(6 pts) 2. Multiply. $\left(5a - 3b\right)\left(2a + 4b\right)$

$$\begin{array}{|c|}\hline \\ \\ \\ \\ \hline \end{array}$$

(14 pts) 3. Factor completely.
(7 pts) a. $9n^2 - 30nt + 25t^2$

$$\begin{array}{|c|}\hline \\ \\ \\ \\ \hline \end{array}$$

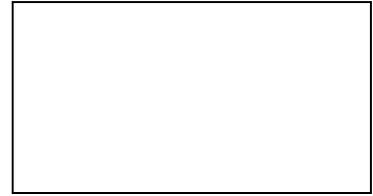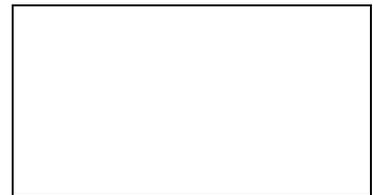(7 pts) b. $4x^3 - 2x^2 - 56x$

$$\begin{array}{|c|}\hline \\ \\ \\ \\ \hline \end{array}$$

Name: _____

Place your answer in the spaces provided. You must show your work to receive credit.

(10 pts) 4. Solve and graph. $\left|-6w-3\right|$ 9

[blank box]
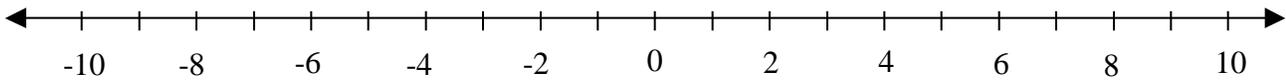
(8 pts) 5. Divide. $\dfrac{m^2-4}{m^2+m-12} \div \dfrac{m^5-2m^4}{m+4}$

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(10 pts) 6. Solve. $\dfrac{5}{a+3} - \dfrac{a-1}{a^2-9} = \dfrac{2}{a-3}$

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Name: _____
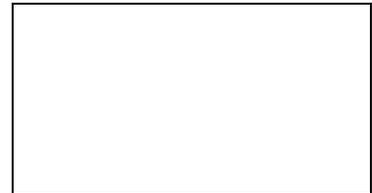Place your answer in the spaces provided. You must show your work to receive credit.

(8 pts) 7. A photograph is 3 cm longer than it is wide and its area is 88 sq cm. Find the length and the width. **Name the variable and set up the equation, <u>but do not solve.</u>**

(8 pts) 8. Find the specified function value, if it exists.

$$f(t) = \frac{2 + x}{14 - 2x}$$

(4 pts) a. $f(7)$

(4 pts) b. $f(-3)$

(8 pts) 9. Use the laws of exponents to simplify. Do not leave negative exponents in your answer.

$$\frac{9^{5/3}}{9^{-1/3}}$$

Name: _____

Place your answer in the spaces provided. You must show your work to receive credit.

(12 pts) 10. Greg can rent a van for either $50 per day with unlimited mileage, or $40 per day with 100 free miles and an extra charge of $ 0.50 for each mile over 100. For what numbers of miles traveled would the unlimited mileage plan save Greg money? **Name the variable, set up the inequality, and solve.**

(10 pts) 11. David can paint a room in 5 hours. Jay can paint the same room in 4 hours. How long will it take them to paint the room if they work together? **Name the variable, set up the equation, and solve.**