$\qquad$ Date:

## Factoring Special Cases Homework

Directions: Be sure to show all work, communicate your thought process, and justify your reasoning. Remember to check that your answers are complete, correct, and reasonable. Do not forget to complete the "Throwback" problems! ©

## Factor each expression.

1. $49 m^{2}-16$
2. $54 s^{2}-726$
3. $48 v^{3}+240 v^{2}+300 v$
4. $-128 n^{3}+288 n^{2}+162 n$
5. $25 x^{4}-36 x^{2}$
6. $12+24 h+12 h^{2}$
7. $64 d^{4}-80 d^{3}+25 d^{2}$
8. $63 w^{2}-252 w+252$
9. $112+56 k^{3}+7 k^{9}$
10. $45 b^{10}-5 b$

## Throwback!

1. Determine the solution for $x$ to each system of equations, to the nearest hundredth:
a. $y=(1 / 3)^{x}$
b. $\begin{aligned} & y=2^{x} \\ & y=4 x\end{aligned}$
2. A student claims that the system of inequalities below will have no solutions. Do you agree or disagree? Support your claim.

$$
\begin{aligned}
& f(x)<(1-x)^{2} \\
& f(x)>(x+1)^{2}+1
\end{aligned}
$$

## Selected Solutions:

1. $(7 m+4)(7 m-4)$
2. $12 v(2 v+5)^{2}$
3. $\left(5 x^{2}+6 x\right)\left(5 x^{2}-6 x\right)$
4. $d^{2}(8 d+5)^{2}$
5. $7\left(4+k^{3}\right)^{2}$

Throwback:

1. graph on graphing calculator \& find intersection
a. $x=.25$
b. $x=.31$
