$\qquad$ ALGEBRA 2

QUIZ \#14
Rational Expressions
Concepts \& Procedures $1=$ $\qquad$ = Critical Thinking Concepts \& Procedures 2 = = Communicate Reasoning
Constructing Models $=-\quad=$ Creativity = Collaboration

## Concepts \& Procedures 1

1-3) Simplify \& chose the appropriate domain for the list offered at the right.

1. $\frac{6 x+24}{6}$
2. $\frac{x^{2}+x-30}{3 x-15}$
3. $\frac{x^{2}-36}{x^{2}-6 x}$

- All Real Numbers
- $\mathrm{x} \neq 5$
- $\mathrm{x} \neq 15$
- $x \neq 0, x \neq 6$
- $\mathrm{x} \neq 0, \mathrm{x} \neq 5$

4. Which expressions are equivalent?
A) $\frac{6 w+7 p}{18}$
B) $\frac{11}{6}\left(\frac{2 w+14 p}{11}\right)$
C) $\frac{8 w}{3}+\frac{14 p}{6}-\frac{7 w}{3}$

Concepts \& Procedures 2
5-7) Solve
5. $\frac{x+2}{14}=\frac{x}{x+5}$
6. $\frac{h}{6}+\frac{h}{5}=1$
7. $\mathbf{0}=\frac{g-7}{g-10}$

## Constructing Models

8. Julio paves a driveway in 7 hours. Zach does the same job in 9. How long would it take them complete pave driveway together?

9-11) It cost Blanca $\$ 1500$ to start her backpack making business. It also cost her $\$ 10$ to make each backpack. Write an equation that relates the Cost, $C$, to the number of Backpacks, b. Then graph your equation for a domain [0, 100] and offer three points that serve as solutions to your equation.
9. $C(b)=$ $\qquad$
11.

10.


## Critcial Thinking

12. For the diagram below, the smaller interior rectangle has a length that is 3 units longer than its height. The larger rectangle is four times taller than the smaller. It length is 6 units longer than twice the height of the smaller, as shown. Show that the ratio of the larger area to the smaller will always be 8 .
$\frac{\text { Larger Area }}{\text { Smaller Area }}=$

$$
=\quad=8
$$



## Communicate Reasoning

13. Kayla noticed that for all work problems of the form, $\frac{\boldsymbol{x}}{\boldsymbol{a}}+\frac{\boldsymbol{x}}{\boldsymbol{b}}=\mathbf{1}$, the solution is always the quotient of the product of $\mathrm{a} \& \mathrm{~b}$, and the sum of a \& b : $\boldsymbol{x}=\frac{\boldsymbol{a} \boldsymbol{b}}{\boldsymbol{a}+\boldsymbol{b}}$

Explain why you agree or disagree with Kayla.

## Creativity

14. Write the equation of a logarithmic function that has an asymptote of $x=3$ and an $x$-intercept of $(0,4)$. Then graph your equation.

$$
f(x)=
$$



