



- \*20 questions
- \*Calculators allowed
- \*Show all work/steps- use separate paper
- \*Recommend time frame 30min -45min

### Concept of Rational Expressions and Equations

1. True or false: proportions are two equal fractions?
2. Define percent in your own words
3. Determine if  $\frac{-30}{-120} = \frac{6}{24}$  is a proportion(explain why or why not)
4. What are Rational Numbers?
5. 18% of what number is 13?
6. 92 is 5% of what number?
7. Is the unit of measure "miles per hour" a rate or ratio? (explain)
8. The number of cylinders in certain type of engine and its horsepower vary directly. When the engine is made with 2 cylinders the horsepower is 20. How many total cylinders would this engine need to have so it runs at 90 horsepower?

Rational Equations/Expressions

9. Simplify  $\frac{2x^2}{10x}$

10. Simplify  $\frac{x^2-y^2}{3x+3y}$

11. Simplify  $\frac{-9y^3x^5z}{3z^34xy^{-2}}$

12. Simplify  $\frac{4x-8}{x^2+x-6}$

13. Simplify  $\frac{3y}{(y+2)} \cdot \frac{2y^2+3y-2}{y^2}$

14. Simplify  $\frac{5x+1}{x+2} \div \frac{3x-2}{x}$

15. Simplify  $\frac{4}{(y+2)} + \frac{-2y+7}{(y+2)}$

16. Simplify  $\frac{6x}{x+2} - \frac{x-2}{2x}$

17. Solve  $\frac{8}{x+2} = \frac{2}{x}$

18. Solve  $\frac{x-4}{5} + \frac{x+2}{2} = 10$

19. Solve  $\frac{7}{y-2} = \frac{3}{2y} + \frac{4}{y-2}$

20. Solve  $\frac{2w+1}{6} + 4 = \frac{w+8}{2w}$