Secondary Math 3                                    Name_____

## 4.2: Multiplying & Dividing Rational Expressions            Period____

**Simplify each and state the excluded values.**

1) $\dfrac{6r^2 + 24r}{r + 5} \cdot \dfrac{r + 5}{3r}$

2) $\dfrac{8n^2 + 32n}{n^2 + 2n - 8} \div \dfrac{1}{n - 2}$

3) $\dfrac{35a + 10}{6} \div \dfrac{35a + 10}{3a}$

4) $\dfrac{1}{n + 3} \div \dfrac{n - 2}{n^2 + 8n + 15}$

5) $\dfrac{42n^2 - 48n}{5} \cdot \dfrac{5}{21n - 24}$

6) $\dfrac{8}{r^2 - 3r - 10} \cdot \dfrac{r^2 - r - 20}{r + 4}$

7) $\dfrac{8b + 32}{8} \cdot \dfrac{1}{8b}$

8) $\dfrac{b^2 - b - 6}{b - 8} \cdot \dfrac{1}{b + 2}$

9) $\dfrac{b + 10}{8b^3 + 80b^2} \div \dfrac{b^2 - 49}{b^2 - 4b - 21}$

10) $\dfrac{x - 1}{x^2 - 2x + 1} \div \dfrac{4x^2 + 24x}{x^2 - 6x + 5}$

11) $\dfrac{x^2 - 12x + 35}{18x^2 + 81x} \cdot \dfrac{18x^2 + 81x}{x^2 - 11x + 30}$

12) $\dfrac{m^2 + 13m + 30}{10m + 100} \cdot \dfrac{8m + 48}{8}$

**Simplify each expression.**

13) $\dfrac{\frac{3x + 5}{y - 1}}{\frac{y - 1}{x - 5}}$

14) $\dfrac{\frac{y^2}{x + 1}}{\frac{yx + y}{2}}$

15) $\dfrac{\frac{y^2}{y - 3}}{\frac{1}{x}}$

16) $\dfrac{\frac{n + 1}{m^2}}{\frac{m^2}{n + 1}}$

**Simplify each and state the excluded values.**

17) $\dfrac{m+5}{m^2+9m+20}$

18) $\dfrac{24b}{12b^2-24b}$

**SPIRAL REVIEW**

19) a) Use your calculator to write a polynomial functional that passes through the following points:
$(-2, 37), (0, 1), (2, -3), (3, 7), (5, 261)$

b) What is the average rate of change on the interval from $(-2, 3)$?

20) Solve the function: $x(x-5)^2(2x-5)=0$

21) Solve the function: $b^2-4b=-3$

22) Solve the function: $4x^2+25=0$

23) Solve the function: $x^3-9x^2-8x+78=0$