Honors Precalculus Name_____

# Algebra 2 Review: Rational Expressions and EQs (please do on your own paper)

Simplify each expression and state the excluded values (aka domain).

1) $-\dfrac{12a^2}{16a^3}$

2) $\dfrac{36x}{8x^2 - 32x}$

3) $\dfrac{21n^2 - 30n}{9n^2 - 12n}$

4) $\dfrac{63n - 90}{27n - 36}$

Simplify each expression. Show all of the steps needed to justify your answer. State the LCD when it is needed.

5) $\dfrac{b-3}{10b+4} - \dfrac{2b}{10b+4}$

6) $\dfrac{3}{9x^2 - 12x - 5} + \dfrac{4x-6}{9x^2 - 12x - 5}$

7) $\dfrac{6x}{x+3} - \dfrac{6}{x+1}$

8) $\dfrac{3}{5r+6} + \dfrac{5r}{r-6}$

9) $\dfrac{5}{x-4} - \dfrac{5}{x-2}$

10) $\dfrac{5n}{2n} - \dfrac{2n}{2n^2 - 10n}$

11) $\dfrac{4}{3} + \dfrac{3}{6n+3}$

12) $\dfrac{4n}{5} - \dfrac{n-6}{2n-5}$

13) $\dfrac{p^2 - 10p + 9}{4p+8} \cdot \dfrac{p+2}{63 + 2p - p^2}$

14) $\dfrac{10x - 20}{6x^3 - 60x^2} \cdot \dfrac{x-5}{10x - 50}$

15) $\dfrac{10}{b^2 + 13b + 36} \div \dfrac{b+9}{b+4}$

16) $\dfrac{3}{k-7} \div \dfrac{1}{2k^3 - 14k^2}$

17) $\dfrac{r^2 - r - 30}{r+8} \cdot \dfrac{1}{r-6}$

18) $\dfrac{1}{a-7} \div \dfrac{a+6}{a^2 + 5a - 6}$

19) $\dfrac{\frac{25}{4} - \frac{5}{16}}{\frac{4}{3}}$

20) $\dfrac{\frac{2}{3} + \frac{3}{8}}{\frac{1}{4} + \frac{8}{3}}$

21) $\dfrac{\frac{9}{4}}{\frac{x}{16}}$

22) $\dfrac{\frac{x}{9}}{\frac{3}{4x}}$

23) $\dfrac{\frac{x-5}{4} + \frac{x}{4}}{\frac{16}{x^2} - \frac{x-5}{4}}$

24) $\dfrac{\frac{x^2}{x-2}}{\frac{x^2}{x-2} - \frac{x-2}{9}}$

Solve each equation. Remember to check for extraneous solutions.

25) $\dfrac{1}{5} = \dfrac{2n+6}{5n} + 1$

26) $\dfrac{3a+3}{a^2 - 4a + 4} = \dfrac{1}{a-2} + \dfrac{1}{a^2 - 4a + 4}$

27) $\dfrac{1}{5} = \dfrac{1}{n^2} - \dfrac{n+3}{5n}$

28) $\dfrac{1}{n-3} + \dfrac{n^2}{n-3} = n$