Retake Packet

Name_____

Review Sheet: Rational Expressions

Date_____

Simplify each and state the excluded values. $\boxed{\text{Evens}}$

1) $\dfrac{5x^2 + 42x + 16}{x + 8}$

2) $\dfrac{n - 3}{3n^2 - 3n - 18}$

3) $\dfrac{30m^2 + 70m}{90m}$

4) $\dfrac{49p}{21p - 70}$

5) $\dfrac{x - 6}{3x^2 - 19x + 6}$

6) $\dfrac{7n + 28}{9n^3 + 36n^2}$

7) $\dfrac{3b^2 + 5b - 12}{4b + 40}$

8) $\dfrac{5r^2 - 41r - 36}{7r^2 - 66r + 27}$

9) $\dfrac{18x - 36}{63x + 9}$

10) $\dfrac{15n + 45}{35n - 40}$

11) $\dfrac{5v^3 - 38v^2 + 48v}{7v^2 - 44v + 12}$

12) $\dfrac{30b^2 - 114b + 108}{18b^2 + 60b + 42}$

13) $\dfrac{5x^3 - 10x^2 - 15x}{7x^2 - 24x + 9}$

14) $\dfrac{4x^3 - 32x^2 + 28x}{2x^3 - 14x^2}$

15) $\dfrac{14a^2 - 64a + 32}{7a^2 - 33a + 20}$

Simplify each expression. Circled Problems

(16) $\dfrac{p-9}{3} \cdot \dfrac{21p-18}{7p-6}$

17) $\dfrac{45k-45}{45k-45k^2} \cdot \dfrac{1}{k+10}$

18) $\dfrac{5x+7}{x-10} \cdot \dfrac{9x^2}{25x+35}$

19) $\dfrac{4}{20-12n} \cdot \dfrac{27n^3-45n^2}{10n^2}$

(20) $\dfrac{9r^2+27r}{6r^3+18r^2} \cdot \dfrac{8}{3r}$

(21) $\dfrac{m+5}{3m^2+24m+21} \cdot \dfrac{21m^2+48m+27}{7m+9}$

22) $\dfrac{x+4}{20x+16}(5x+4)$

(23) $\dfrac{49n+56}{7} \cdot \dfrac{5}{35n^2+40n}$

(24) $\dfrac{5v+50}{21v^2+6v}(7v+2)$

25) $\dfrac{2b+2}{b+5} \cdot \dfrac{24b-40}{6b^2-4b-10}$

(26) $\dfrac{1}{5n-3} \div \dfrac{n+7}{15n-9}$

27) $\dfrac{2x+5}{2x^2-3x-20} \div \dfrac{1}{7x}$

28) $\dfrac{k+8}{18k^2+63k} \div \dfrac{6}{18k^2+63k}$

29) $\dfrac{5a+8}{25a+40} \div \dfrac{1}{a+2}$

30) $\dfrac{1}{x-2} \div \dfrac{7x-3}{35x-15}$

(31) $(3x+9) \div \dfrac{9x+27}{x+7}$

32) $\dfrac{3n^2+7n-20}{3n-5} \div 5n^2$

(33) $\dfrac{2m^2-m-15}{12m^2+30m} \div \dfrac{1}{m+3}$

34) $\dfrac{8p}{p^2+3p-40} \div \dfrac{8p}{5}$

35) $(5x-1) \div \dfrac{50x-10}{4}$

(36) $\dfrac{5}{x^2+9x+18} + \dfrac{4x+1}{x^2+9x+18}$

(37) $\dfrac{5}{6n+18} - \dfrac{n+5}{6n+18}$

Name_____ Class_____ Date_____

Practice 12-4 *Circled Problems* .... **Dividing Polynomials**

Divide.

1. $\dfrac{10x - 25}{5}$

2. $\dfrac{4x^3 - 3x}{x}$

3. $(3x^2 - 6x) \div 3x$

4. $(10x^2 - 6x) \div 2x$

5. $(-8x^5 + 16x^4 - 24x^3 + 32x^2) \div 8x^2$

6. $(15x^2 - 30x) \div 5x$

7. $(x^2 - 14x + 49) \div (x - 7)$

8. $(2x^2 - 13x + 21) \div (x - 3)$

9. $(4x^2 - 16) \div (2x + 4)$

10. $(x^2 + 4x - 12) \div (x - 2)$

11. $(x^2 + 10x + 16) \div (x + 2)$

12. $(12x^2 - 5x - 2) \div (3x - 2)$

13. $(x^2 + 5x + 10) \div (x + 2)$

14. $(x^2 - 8x - 9) \div (x - 3)$

15. $(3x^2 - 2x - 13) \div (x - 2)$

16. $(x^3 + 3x^2 + 5x + 3) \div (x + 1)$

17. $(5 - 23x + 12x^2) \div (4x - 1)$

18. $(24 + 6x^2 + 25x) \div (3x - 1)$

19. $(2x^2 + 11x - 5) \div (x + 6)$

20. $(x^2 + 5x - 10) \div (x + 2)$

21. $(8x + 3 + 4x^2) \div (2x - 1)$

22. $(3x^2 + 11x - 4) \div (3x - 1)$

23. $(x^3 + x - x^2 - 1) \div (x - 1)$

24. $(10 + 21x + 10x^2) \div (2x + 3)$

25. $(6x^2 - 35x + 36) \div (3x - 4)$

26. $(-2x^2 - 33x + x^3 - 7) \div (x - 7)$

27. The volume of a rectangular prism is $15x^3 + 38x^2 - 23x - 6$. The height of the prism is $5x + 1$, and the width of the prism is $x + 3$. Find the length of the prism.

28. The width of a rectangle is $x + 1$, and the area is $x^3 + 2x^2 - 5x - 6$ cm. What is the length of the rectangle?