Pre-Calculus
12.2 Limit Pre-req review

Name: _____

Factoring Review

Factoring out the Greatest Common Factor

1. $18x^3 + 27x^2$

2. $x^2(x + 3) + 5(x + 3)$

3. $10x^3 - 4x^2$

4. $2x(x - 7) + 3(x - 7)$

5. $9x^4 - 18x^3 + 36x^2$

6. $x^2(2x + 5) + 17(2x + 5)$

Factoring by Grouping

7. $x^3 + 4x^2 + 3x + 12$

8. $x^3 + 5x^2 - 2x - 10$

9. $x^3 - 2x^2 + 5x - 10$

10. $3x^3 - 2x^2 - 6x + 4$

11. $x^3 + 2x^2 - x - 2$

12. $x^3 - x^2 - 5x + 5$

Factoring Trinomials Whose Leading Coefficient Is 1

13. $x^2 + 6x + 8$

14. $x^2 + 13x + 40$

15. $x^2 + 3x - 18$

16. $x^2 - 5x - 14$

17. $x^2 - 14x + 45$

18. $x^2 - 8x + 15$

Factoring the Difference of Two Squares

19. $x^2 - 4$

20. $81x^2 - 49$

21. $x^2 - 81$

22. $36x^2 - 25$

23. $9x^2 - 25$

24. $64x^2 - 121$

Factoring the Sum or Difference of Two Cubes

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

25. $x^3 + 8$

26. $64x^3 - 125$

27. $x^3 + 1$

28. $125x^3 - 8$

29. $x^3 - 27$

30. $8x^3 + 125$

Exponent Review

Rewrite without negative or rational exponents.

1) $3x^{-7}$

2) a^{-11}

3) x^{-y}

4) $\frac{3}{2x^{-2}}$

5) $7^{\frac{1}{2}}$

6) $4^{\frac{4}{3}}$

7) $5x^{-\frac{1}{2}}$

8) $\frac{2x}{x^{-\frac{3}{4}}}$

Rewrite <u>with</u> negative or rational exponents.

9) $\frac{3}{x^2}$

10) $\frac{10}{x}$

11) $\frac{4y}{y^4}$

12) $\frac{1}{x^4}$

13) $(\sqrt{x})^3$

14) $5\sqrt[4]{y^5}$

15) $\frac{2}{\sqrt[3]{x^2}}$

16) $\frac{1}{\sqrt[4]{x}}$