Name _____

3-3 Additional Practice

Polynomial Identities

Prove the polynomial identity.

1. $x^2 - y^2 = (x - y)(x + y)$

2. $(x^4 - y^4) = (x^2 + y^2)\,(x + y)\,(x - y)$

Use polynomial identities to multiply the polynomial.

3. $(3x + 9)\,(3x - 9)$

4. $(-6x^2 + 7y^3)^2$

5. $(8x^4 + 5y^3)^2$

Use polynomial identities to factor the polynomial.

6. $n^6 - 25m^4$

7. $16x^{12} - 64y^4$

8. $b^2 - 36c^4$

9. $25x^6 - 100y^4$

10. $225x^6 - y^{10}$

Expand the equations using Pascal's Triangle and the Binomial Theorem.

11. $(x + 0.5)^3$

12. $(s + 4t)^6$

Use Pascal's Triangle to expand the equations below.

13. $(3a - 3b)^4$

14. $(3m - 2n)^5$

15. $(a - 4)^5$

16. A rectangular lawn has an area of $a^3 - 125$. Use the difference of cubes to find out the dimensions of the rectangle.