Proudly completed by:_____

Difference of squares

You may remember multiplying out certain expressions using F.O.I.L. to get an answer as follows:

$(x+3)(x-3) = x^2 - 3x + 3x - 9 = x^2 - 9$

$x^2 - 9$ is called "a difference of squares" because both terms are squared ($x \bullet x = x^2$ and $3 \bullet 3 = 9$) and the difference between them is subtraction.

Learn to recognize difference of squares. Sometimes they are hidden and you need to factor first.

Example: Factor the following completely: $5n^2 - 80$
Solve: Factor out the 5 to get $5(n^2 - 16)$. $(n^2 - 16)$ is a difference of squares which is $(n+4)(n-4)$.
So $5n^2 - 80$ factors to $5(n+4)(n-4)$.

Check: F.O.I.L. then distribute your answer to check to see if you get the original problem.

Practice factoring completely below.

1. $x^2 - 64$:

Answer: _____

2. $x^2 - 121$:

Answer: _____

3. $x^2 - 25$:

Answer: _____

4. $x^2 - 169$:

Answer: _____

5. $x^2 - 1$:

Answer: _____

6. $3x^2 - 27$:

Answer: _____

7. $2x^2 - 50$:

Answer: _____

8. $4x^3 - 36x$:

Answer: _____

9. $9x^2 - 16$:

Answer: _____

10. $9x^2 - 100$:

Answer: _____

11. $x^2 - 36y^2$:

Answer: _____

12. $16x^2 - 25y^2$:

Answer: _____

13. If Ann correctly factors an expression that is the difference of two perfect squares, her factors could be which one of the following: $(2x + y)(x - 2y)$, $(2x + 3y)(2x - 3y)$, $(x - 4)(x - 4)$ or $(2y - 5)(y - 5)$. Explain the reason for your answer.

_____

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