Name _____

7-6 Additional Practice

Factoring $ax^2 + bx + c$

Factor each trinomial completely.

1. $2x^2 + 10x + 12$

2. $3x^3 - 3x^2 - 60x$

3. $4x^4 - 12x^3 + 8x^2$

4. $6x^2 + 19x + 10$

5. $4x^2 - 31x + 21$

6. $8x^2 - 14x - 15$

7. $6x^2 + 26x + 8$

8. $12x^3 + 39x^2 - 36x$

9. $-24x^2 + 20x + 100$

10. $3x^2 + 9xy + 6y^2$

11. $2x^2 - 6xy - 8y^2$

12. $4x^2 - 8xy - 140y^2$

13. $2x^2 + 15xy + 25y^2$

14. $6x^2 - 19xy + 15y^2$

15. $4x^2 + 11xy - 20y^2$

16. Why is it helpful to remove the GCF before factoring using grouping or substitution?

17. A right rectangular prism has a volume of $6x^3 - 3x^2 - 45x$.

a. What are expressions for the length, width, and height?

b. What is the least possible integer value of x for the rectangular solid to exist? Explain.

7-6 Additional Practice

Factoring $ax^2 + bx + c$

Factor each trinomial completely.

1. $2x^2 + 10x + 12$
   $2(x + 3)(x + 2)$
2. $3x^3 - 3x^2 - 60x$
   $3x(x - 5)(x + 4)$
3. $4x^4 - 12x^3 + 8x^2$
   $4x^2(x - 2)(x - 1)$
4. $6x^2 + 19x + 10$
   $(2x + 5)(3x + 2)$
5. $4x^2 - 31x + 21$
   $(4x - 3)(x - 7)$
6. $8x^2 - 14x - 15$
   $(2x - 5)(4x + 3)$
7. $6x^2 + 26x + 8$
   $2(3x + 1)(x + 4)$
8. $12x^3 + 39x^2 - 36x$
   $3x(4x - 3)(x + 4)$
9. $-24x^2 + 20x + 100$
   $-4(2x - 5)(3x + 5)$
10. $3x^2 + 9xy + 6y^2$
    $3(x + 2y)(x + y)$
11. $2x^2 - 6xy - 8y^2$
    $2(x - 4y)(x + y)$
12. $4x^2 - 8xy - 140y^2$
    $4(x - 7y)(x + 5y)$
13. $2x^2 + 15xy + 25y^2$
    $(2x + 5y)(x + 5y)$
14. $6x^2 - 19xy + 15y^2$
    $(3x - 5y)(2x - 3y)$
15. $4x^2 + 11xy - 20y^2$
    $(4x - 5y)(x + 4y)$

16. Why is it helpful to remove the GCF before factoring using grouping or substitution?
    Sample answer: Factoring out the GCF reduces the coefficients to smaller numbers, which in turn makes it easier to find the binomial factors.

17. A right rectangular prism has a volume of $6x^3 - 3x^2 - 45x$.

    a. What are expressions for the length, width, and height?
    Sample answer: $3x$, $2x + 5$ and $x - 3$

    b. What is the least possible integer value of x for the rectangular solid to exist? Explain.
    4; Sample answer: All dimensions must be positive. Therefore, $x > 3$, and $x = 4$ is the least possible integer for the rectangular solid to exist.