Name _____ Date _____ Class _____

LESSON 8-2

Practice A

Factoring by GCF

Factor each polynomial. Check your answer. The first one is done for you.

1. $x^2 + 5x$

   $x($ **x** $+$ **5** $)$

2. $5m^3 + 45$

   ___ (___ + 9)

3. $15y^3 + 20y^5 - 10$

   ___ $(3y^3 + 4$___ $-$ ___ $)$

4. $10y^2 + 12y^3$

   _____

5. $-12t^5 + 6t$

   _____

6. $6x^4 + 15x^3 + 3x^2$

   _____

7. The expression $-5t^2 + 40t$ gives the approximate height of a golf ball after t seconds at a speed of 40 m/s. Factor this expression.

   _____

Factor out the common binomial factor in each expression.

8. $4d(d + 2) + 9(d + 2)$

   _____

9. $12(x - 5) + 7x(x - 5)$

   _____

Factor each polynomial by grouping.

10. $n^3 + 3n^2 + 4n + 12$

    $(n^3 +$ ___$) + (4n +$ ___$)$

    $n^2(n +$ ___$) + 4(n +$ ___$)$

    _____

11. $2x^3 + 5x^2 + 2x + 5$

    _____

Factor each polynomial by grouping and using opposites.

12. $2y^3 - 4y^2 + 6 - 3y$

    (___ $- 4y^2) + ($___ $- 3y)$

    $2y^2$ (___ $- 2) + 3$ (___ $- y)$

    $2y^2$ (___ $- 2) + 3(-1)$ (___ $- 2)$

    $2y^2$ (___ $- 2) - 3(y -$ ___$)$

    _____

13. $4m^3 - 12m^2 + 15 - 5m$

    _____

3. 3 | 81
   3 | 27
   3 | 9
   3 | 3
   1
   3^4

4. $3^2 \cdot 11$
5. $3 \cdot 5^2$
6. $2^2 \cdot 3 \cdot 7$
7. 1, 2, 4, 7, 14, 28
8. 1, 2, 4, 11, 22, 44
9. 4
10. 5
11. 4
12. 12
13. $2a$
14. $3x^2$
15. y

Challenge

1. $3^1 5^2 11^1$
2. $3^2 5^2 7^1$
3. 2^{10}
4. $2^4 3^2 5^2 7^1$
5. 2, 3, 5, and 7
6. 2 and 11
7. relatively prime
8. 3, 5, 17, and 31
9. $2^1 3^2 5^2 7^2$
10. $2^1 11^2$
11. 1
12. $3^2 5^5 17^2 31^5$
13. $2^3 3^4 7^1$
14. 1

Problem Solving

1. 9 awards in each row; total of 5 rows
2. 12 snacks of 4 carrot sticks and 3 apple slices
3. 8 centerpieces; 9 carnations, 10 lilies, 8 rosebuds
4. 6 rows
5. A
6. H
7. D

Reading Strategies

1. 1, 2, 4, 7, 14, 28
2. $a \cdot a \cdot a \cdot a \cdot a$
3. 1, 2, 4, 8, 16
4. $a \cdot a$
5. $4a^2$
6. $2m$
7. no; 11 and 3 are factors.
8. $2 \cdot 3^3$
9. $2 \cdot 3 \cdot 5^2$
10. $2^4 \cdot 5$

LESSON 8–2

Practice A

1. x; 5
2. 5; m^3
3. 5; y^5; 2
4. $2y^2(5 + 6y)$
5. $6t(-2t^4 + 1)$
6. $3x^2(2x^2 + 5x + 1)$
7. $5t(-t + 8)$
8. $3x$ and $x + 8$
9. $(d + 2)(4d + 9)$
10. $(x - 5)(12 + 7x)$
11. $3n^2$; 12; 3; 3; $(n + 3)(n^2 + 4)$
12. $(2x + 5)(x^2 + 1)$
13. $2y^3$; 6; y; 2; y; y; y; 2; $(y - 2)(2y^2 - 3)$
14. $(m - 3)(4m^2 - 5)$

Practice B

1. $c(8c + 7)$
2. $3n^2(n + 4)$
3. $3x(5x^4 - 6)$
4. $4(-2s^4 + 5t^3 - 7)$
5. $6n(n^5 + 3n^3 - 4)$
6. $5m^2(-m^2 - m + 1)$
7. $16t(-t + 2)$
8. $3x$ and $4x + 1$
9. $(m + 5)(3m + 4)$
10. $(b - 3)(16b + 1)$
11. $(x + 4)(2x^2 + 3)$
12. $(4n + 3)(n^2 + 1)$
13. $(5d - 3)(2d + 7)$
14. $(4n - 5)(3n^2 - 2)$
15. $(b - 3)(5b^3 - 1)$
16. $(t^2 - 2)(t - 5)$

Practice C

1. $4x^2(2x^2 - 3)$
2. $4b(-3ab^2 + 5)$
3. $2(8m^2 - n^3 + 15m)$
4. $9j(3j^3 - 8j^2 + 1)$
5. $-5x^3(x^2 - 7x + 6)$
6. $16x^2y(x^4 + y^3 + 2xy)$
7. $2\pi r(r + h)$
8. $\frac{1}{2}x$ and $3x + 1$
9. $(k - 2)(10 + 7k)$
10. $(m + 7)(9m^2 + 5)$
11. $(t + 3)(2t^2 + 1)$
12. $(3n + 2)(n^3 - 5)$
13. $(6a - 7)(2a + 5)$
14. $(2n^2 + 1)(5n^3 - 14)$
15. $(3b^3 - 1)(b - 8)$
16. $(x - 4)(3x^2 - 5)$