Name _____ Date _____ Class _____

California Standards Prep for 11.0

LESSON 8-1

Practice

Factors and Greatest Common Factors

Write the prime factorization of each number.

1. 18 _____

2. 120 _____

3. 56 _____

4. 390 _____

5. 144 _____

6. 153 _____

Find the GCF of each pair of numbers.

7. 16 and 20 _____

8. 9 and 36 _____

9. 15 and 28 _____

10. 35 and 42 _____

11. 33 and 66 _____

12. 100 and 120 _____

13. 78 and 30 _____

14. 84 and 42 _____

Find the GCF of each pair of monomials.

15. $15x^4$ and $35x^2$ _____

16. $12p^2$ and $30q^5$ _____

17. $-6t^3$ and $9t$ _____

18. $27y^3z$ and $45x^2y$ _____

19. $12ab$ and 12 _____

20. $-8d^3$ and $14d^4$ _____

21. $-m^8n^4$ and $3m^6n$ _____

22. $10gh^2$ and $5h$ _____

23. Kirstin is decorating her bedroom wall with photographs. She has 36 photographs of family and 28 photographs of friends. She wants to arrange the photographs in rows so that each row has the same number of photographs, and photographs of family and photographs of friends do not appear in the same row.

a. How many rows will there be if Kirstin puts the greatest possible number of photographs in each row?

_____

b. How many photographs will be in each row? _____

Name _____ Date _____ Class _____

California Standards 10.0

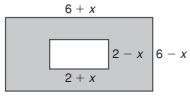
LESSON 7-9 **Practice**

Special Products of Binomials

Multiply.

1. $(x + 2)^2$ — $x^2 + 4x + 4$
2. $(m + 4)^2$ — $m^2 + 8m + 16$
3. $(3 + a)^2$ — $9 + 6a + a^2$
4. $(2x + 5)^2$ — $4x^2 + 20x + 25$
5. $(3a + 2)^2$ — $9a^2 + 12a + 4$
6. $(6 + 5b)^2$ — $36 + 60b + 25b^2$
7. $(b - 3)^2$ — $b^2 - 6b + 9$
8. $(8 - y)^2$ — $64 - 16y + y^2$
9. $(a - 10)^2$ — $a^2 - 20a + 100$
10. $(3x - 7)^2$ — $9x^2 - 42x + 49$
11. $(4m - 9)^2$ — $16m^2 - 72m + 81$
12. $(6 - 3n)^2$ — $36 - 36n + 9n^2$
13. $(x + 3)(x - 3)$ — $x^2 - 9$
14. $(8 + y)(8 - y)$ — $64 - y^2$
15. $(x + 6)(x - 6)$ — $x^2 - 36$
16. $(5x + 2)(5x - 2)$ — $25x^2 - 4$
17. $(10x + 7y)(10x - 7y)$ — $100x^2 - 49y^2$
18. $(x^2 + 3y)(x^2 - 3y)$ — $x^4 - 9y^2$

19. Write a simplified expression that represents the...



a. area of the large rectangle.
$36 - x^2$

b. area of the small rectangle.
$4 - x^2$

c. area of the shaded area.
32

20. The small rectangle is made larger by adding 2 units to the length and 2 units to the width.

a. What is the new area of the smaller rectangle?
$16 - x^2$

b. What is the area of the new shaded area?
20

Name _____ Date _____ Class _____

California Standards Prep for 11.0

LESSON 8-1 **Practice**

Factors and Greatest Common Factors

Write the prime factorization of each number.

1. 18 — $2 \cdot 3^2$
2. 120 — $2^3 \cdot 3 \cdot 5$
3. 56 — $2^3 \cdot 7$
4. 390 — $2 \cdot 3 \cdot 5 \cdot 13$
5. 144 — $2^4 \cdot 3^2$
6. 153 — $3^2 \cdot 17$

Find the GCF of each pair of numbers.

7. 16 and 20 — 4
8. 9 and 36 — 9
9. 15 and 28 — 1
10. 35 and 42 — 7
11. 33 and 66 — 33
12. 100 and 120 — 20
13. 78 and 30 — 6
14. 84 and 42 — 42

Find the GCF of each pair of monomials.

15. $15x^4$ and $35x^2$ — $5x^2$
16. $12p^2$ and $30q^5$ — 6
17. $-6t^3$ and $9t$ — $3t$
18. $27y^3z$ and $45x^2y$ — $9y$
19. $12ab$ and 12 — 12
20. $-8d^3$ and $14d^4$ — $2d^3$
21. $-m^8n^4$ and $3m^6n$ — m^6n
22. $10gh^2$ and $5h$ — $5h$

23. Kirstin is decorating her bedroom wall with photographs. She has 36 photographs of family and 28 photographs of friends. She wants to arrange the photographs in rows so that each row has the same number of photographs, and photographs of family and photographs of friends do not appear in the same row.

a. How many rows will there be if Kirstin puts the greatest possible number of photographs in each row?
16

b. How many photographs will be in each row? 4

Name _____ Date _____ Class _____

California Standards 11.0

LESSON 8-2 **Practice**

Factoring by GCF

Factor each polynomial. Check your answer.

1. $8c^2 + 7c$ — $c(8c + 7)$
2. $3n^3 + 12n^2$ — $3n^2(n + 4)$
3. $15x^5 - 18x$ — $3x(5x^4 - 6)$
4. $-8s^4 + 20t^3 - 28$ — $4(-2s^4 + 5t^3 - 7)$
5. $6n^6 + 18n^4 - 24n$ — $6n(n^5 + 3n^3 - 4)$
6. $-5m^4 - 5m^3 + 5m^2$ — $5m^2(-m^2 - m + 1)$

7. A ball is hit vertically into the air using a paddle at a speed of 32 ft/sec. The expression $-16t^2 + 32t$ gives the ball's height after t seconds. Factor this expression.
$16t(-t + 2)$

8. The area of Margo's laptop computer screen is $12x^2 + 3x$ in^2. Factor this polynomial to find expressions for the dimensions of her computer screen.
$3x$ and $4x + 1$

Factor each expression.

9. $3m(m + 5) + 4(m + 5)$ — $(m + 5)(3m + 4)$
10. $16b(b - 3) + (b - 3)$ — $(b - 3)(16b + 1)$

Factor each polynomial by grouping.

11. $2x^3 + 8x^2 + 3x + 12$ — $(x + 4)(2x^2 + 3)$
12. $4n^3 + 3n^2 + 4n + 3$ — $(4n + 3)(n^2 + 1)$
13. $10d^2 - 6d + 35d - 21$ — $(5d - 3)(2d + 7)$
14. $12n^3 - 15n^2 - 8n + 10$ — $(4n - 5)(3n^2 - 2)$
15. $5b^4 - 15b^3 + 3 - b$ — $(b - 3)(5b^3 - 1)$
16. $t^3 - 5t^2 + 10 - 2t$ — $(t^2 - 2)(t - 5)$

Name _____ Date _____ Class _____

California Standards 11.0

LESSON 8-3 **Practice**

Factoring $x^2 + bx + c$

Factor each trinomial.

1. $x^2 + 7x + 10$ — $(x + 2)(x + 5)$
2. $x^2 + 9x + 8$ — $(x + 1)(x + 8)$
3. $x^2 + 13x + 36$ — $(x + 4)(x + 9)$
4. $x^2 + 9x + 14$ — $(x + 7)(x + 2)$
5. $x^2 + 7x + 12$ — $(x + 3)(x + 4)$
6. $x^2 + 9x + 18$ — $(x + 6)(x + 3)$
7. $x^2 - 9x + 18$ — $(x - 6)(x - 3)$
8. $x^2 - 5x + 4$ — $(x - 4)(x - 1)$
9. $x^2 - 9x + 20$ — $(x - 5)(x - 4)$
10. $x^2 - 12x + 20$ — $(x - 2)(x - 10)$
11. $x^2 - 11x + 18$ — $(x - 9)(x - 2)$
12. $x^2 - 12x + 32$ — $(x - 8)(x - 4)$
13. $x^2 + 7x - 18$ — $(x + 9)(x - 2)$
14. $x^2 + 10x - 24$ — $(x + 12)(x - 2)$
15. $x^2 + 2x - 3$ — $(x + 3)(x - 1)$
16. $x^2 + 2x - 15$ — $(x + 5)(x - 3)$
17. $x^2 + 5x - 6$ — $(x + 6)(x - 1)$
18. $x^2 + 5x - 24$ — $(x + 8)(x - 3)$
19. $x^2 - 5x - 6$ — $(x + 1)(x - 6)$
20. $x^2 - 2x - 35$ — $(x + 5)(x - 7)$
21. $x^2 - 7x - 30$ — $(x + 3)(x - 10)$
22. $x^2 - x - 56$ — $(x + 7)(x - 8)$
23. $x^2 - 2x - 8$ — $(x + 2)(x - 4)$
24. $x^2 - x - 20$ — $(x + 4)(x - 5)$

25. Factor $n^2 + 5n - 24$. Show that the original polynomial and the factored form describe the same sequence of numbers for $n = 0, 1, 2, 3,$ and 4.
$(n + 8)(n - 3)$

n	$n^2 + 5n - 24$
0	$0^2 + 5(0) - 24 = -24$
1	$1^2 + 5(1) - 24 = -18$
2	$2^2 + 5(2) - 24 = -10$
3	$3^2 + 5(3) - 24 = 0$
4	$4^2 + 5(4) - 24 = 12$

n	$(n + 8)(n - 3)$
0	$(0 + 8)(0 - 3) = -24$
1	$(1 + 8)(1 - 3) = -18$
2	$(2 + 8)(2 - 3) = -10$
3	$(3 + 8)(3 - 3) = 0$
4	$(4 + 8)(4 - 3) = 12$