NAME _____ DATE _____ PERIOD _____

5-4 Skills Practice

Factoring Polynomials

Factor completely. If the polynomial is not factorable, write *prime*.

1. $7x^2 - 14x$

2. $19x^3 - 38x^2$

3. $21x^3 - 18x^2y + 24xy^2$

4. $8j^3k - 4jk^3 - 7$

5. $a^2 + 7a - 18$

6. $2ak - 6a + k - 3$

7. $b^2 + 8b + 7$

8. $z^2 - 8z - 10$

9. $m^2 + 7m - 18$

10. $2x^2 - 3x - 5$

11. $4z^2 + 4z - 15$

12. $4p^2 + 4p - 24$

13. $3y^2 + 21y + 36$

14. $c^2 - 100$

15. $4f^2 - 64$

16. $d^2 - 12d + 36$

17. $9x^2 + 25$

18. $y^2 + 18y + 81$

19. $n^3 - 125$

20. $m^4 - 1$

Simplify. Assume that no denominator is equal to 0.

21. $\dfrac{x^2 + 7x - 18}{x^2 + 4x - 45}$

22. $\dfrac{x^2 + 4x + 3}{x^2 + 6x + 9}$

23. $\dfrac{x^2 - 10x + 25}{x^2 - 5x}$

24. $\dfrac{x^2 + 6x - 7}{x^2 - 49}$

Lesson 5-4

NAME _____ DATE _____ PERIOD _____

5-4 Practice

Factoring Polynomials

Factor completely. If the polynomial is not factorable, write *prime*.

1. $15a^2b - 10ab^2$

2. $3st^2 - 9s^3t + 6s^2t^2$

3. $3x^3y^2 - 2x^2y + 5xy$

4. $2x^3y - x^2y + 5xy^2 + xy^3$

5. $21 - 7t + 3r - rt$

6. $x^2 - xy + 2x - 2y$

7. $y^2 + 20y + 96$

8. $4ab + 2a + 6b + 3$

9. $6n^2 - 11n - 2$

10. $6x^2 + 7x - 3$

11. $x^2 - 8x - 8$

12. $6p^2 - 17p - 45$

13. $r^3 + 3r^2 - 54r$

14. $8a^2 + 2a - 6$

15. $c^2 - 49$

16. $x^3 + 8$

17. $16r^2 - 169$

18. $b^4 - 81$

19. $8m^3 - 25$

20. $2t^3 + 32t^2 + 128t$

21. $5y^5 + 135y^2$

22. $81x^4 - 16$

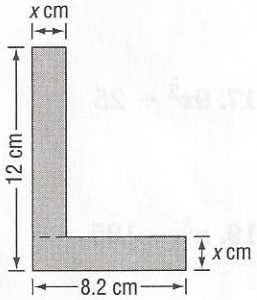
Simplify. Assume that no denominator is equal to 0.

23. $\dfrac{x^2 - 16}{x^2 + x - 20}$

24. $\dfrac{x^2 - 16x + 64}{x^2 + x - 72}$

25. $\dfrac{3x^2 - 27}{x^3 - 27}$

26. DESIGN Bobbi Jo is using a software package to create a drawing of a cross section of a brace as shown at the right. Write a simplified, factored expression that represents the area of the cross section of the brace.



27. COMBUSTION ENGINES In an internal combustion engine, the up and down motion of the pistons is converted into the rotary motion of the crankshaft, which drives the flywheel. Let r_1 represent the radius of the flywheel at the right and let r_2 represent the radius of the crankshaft passing through it. If the formula for the area of a circle is $A = \pi r^2$, write a simplified, factored expression for the area of the cross section of the flywheel outside the crankshaft.