

**Ch. 5 Practice  
Math 90**

**Name** \_\_\_\_\_  
**Date** \_\_\_\_\_

Factor completely.

- |                            |                                    |                            |
|----------------------------|------------------------------------|----------------------------|
| 1. $2xy + 16x^2y$          | 2. $12a^3b - 18ab^3$               | 3. $9r^2 - 6r^3 + 18r^4$   |
| 4. $32rs + 16r^2s + 48r^3$ | 5. $p^2 - 2p + 7p - 14$            | 6. $4 - 2m - 2q + qm$      |
| 7. $p^2 - 6p - 7$          | 8. $5p^4q^3 - 10p^3q^3 - 75p^2q^3$ | 9. $7m^2 + 22m + 3$        |
| 10. $10r^2 - 33r - 7$      | 11. $6x^2 + 7xy - 3y^2$            | 12. $21z^2 + 41zy + 10y^2$ |
| 13. $162p^2 - 50$          | 14. $25m^2 - 49q^2$                | 15. $z^4 - 81$             |
| 16. $9p^2 - 30p + 25$      | 17. $64z^2 - 48z + 9$              | 18. $18z^3 - 24z^2 + 8z$   |
| 19. $27z^3 + 8$ (optional) | 20. $1000p^3 - 27q^6$ (optional)   | 21. $x^2 - y^2 + 5x + 5y$  |

Solve each equation.

- |                                    |                     |
|------------------------------------|---------------------|
| 22. $6m^2 - 11m = 10$              | 23. $q(6q - 1) = 2$ |
| 24. $(3r + 2)(4r^2 + 7r - 15) = 0$ | 25. $r^3 - 25r = 0$ |

Solve each applied problem.

26. The length of a rectangle is 4 inches less than twice its width. The area is 96 square inches. Find the width of the rectangle.
27. The hypotenuse of a right triangle is 4 cm less than three times the shorter leg. The longer leg is 2 cm shorter than twice the smaller leg. Find the length of the shorter leg.

**Answers**

- |                                      |   |                                      |
|--------------------------------------|---|--------------------------------------|
| <u>1.</u> $2xy(1 + 8x)$              | <u>2.</u> $6ab(2a^2 - 3b^2)$                      | <u>3.</u> $3r^2(3 - 2r + 6r^2)$      |
| <u>4.</u> $16r(2s + rs + 3r^2)$      | <u>5.</u> $(p - 2)(p + 7)$                        | <u>6.</u> $(2 - m)(2 - q)$           |
| <u>7.</u> $(p - 7)(p + 1)$           | <u>8.</u> $5p^2q^3(p - 5)(p + 3)$                 | <u>9.</u> $(7m + 1)(m + 3)$          |
| <u>10.</u> $(5r + 1)(2r - 7)$        | <u>11.</u> $(3x - y)(2x + 3y)$                    | <u>12.</u> $(7z + 2y)(3z + 5y)$      |
| <u>13.</u> $2(9p + 5)(9p - 5)$       | <u>14.</u> $(5m + 7q)(5m - 7q)$                   | <u>15.</u> $(z^2 + 9)(z + 3)(z - 3)$ |
| <u>16.</u> $(3p - 5)^2$              | <u>17.</u> $(8z - 3)^2$                           | <u>18.</u> $2z(3z - 2)^2$            |
| <u>19.</u> $(3z + 2)(9z^2 - 6z + 4)$ | <u>20.</u> $(10p - 3q^2)(100p^2 + 30pq^2 + 9q^4)$ | <u>23.</u> $2/3, -1/2$               |
| <u>21.</u> $(x + y)(x - y + 5)$      | <u>22.</u> $-2/3, 5/2$                            | <u>26.</u> 8 inches                  |
| <u>24.</u> $-2/3, 5/4, -3$           | <u>25.</u> 0, 5, -5                               | <u>27.</u> 3 cm                      |