

### 3.6 Reviewing Common Factors

MATHPOWER™ 10, Western Edition, pp. 118–120

Factor, if possible.

1.  $4x + 28$
2.  $3x + 17$
3.  $6x - 32y$
4.  $26x^2 - 13y$
5.  $2ax + 10ay - 8az$
6.  $2a^2 - 6a - 15$

Factor completely, if possible.

7.  $8x^2 + 32y^3$
8.  $10y - 5y^2 + 25y^3$
9.  $14rst + 7rs - 6t$
10.  $36xy - 12x^2y$

11.  $4ab^2 + 2a^2c + 5b^2c^2$

12.  $3x^3y^2 - 12x^2y^3 + 18x^2y + 15xy^2$

Factor, if possible.

13.  $3x(y - z) - 2(y - z)$

14.  $5y(z + 3) + x(z - 3)$

15.  $4t(r + 6) - (r + 6)$

16.  $7(a + b) - 2x(a + b)$

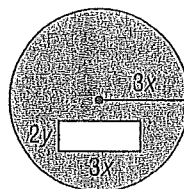
17.  $2x(3m - 5) - 3(5 - 3m)$

Factor by grouping.

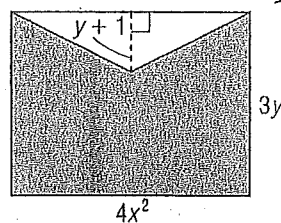
18.  $ax - by + xb - ya$
19.  $y^2 - x + y - xy$
20.  $ab + 9 + 3a + 3b$
21.  $t^2 - tr + 4r - 4t$
22.  $4x^2 + 6xy + 12y + 8x$
23.  $3x^2y - 6x^2 - 2y + y^2$
24.  $4ab^2 - 12a^2b - 3bc + 9ac$

Write an expression for the area of each shaded region in factored form.

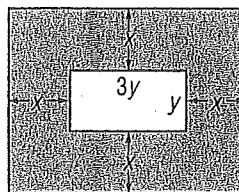
25.



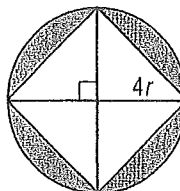
26.



27.



28.



### 3.10 Factoring Special Quadratics

MATHPOWER™ 10, Western Edition, pp. 132–134

Factor, if possible.

1.  $x^2 - 25$

2.  $y^2 - 49$

3.  $y^4 - 1$

4.  $z^2 + 64$

5.  $4a^2 - 9$

6.  $49 - 64m^2$

7.  $169a^2 - b^2$

8.  $25 + 4x^2$

9.  $81x^2 - 121p^2$

10.  $49 - (a - z)^2$

State whether each trinomial is a perfect square trinomial. If it is, factor it.

11.  $x^2 + 8x + 16$

12.  $y^2 - 14y + 49$

13.  $z^2 - 9z + 9$

14.  $9t^2 + 6t + 1$

15.  $4m^2 - 12m - 9$

16.  $4x^2 - 20x + 25$

17.  $121 - 22m + m^2$

18.  $16x^2 + 24xy + 9y^2$

19.  $64a^2 - 30ab + 49b^2$

20.  $25x^2 + 30xy + 9y^2$

Factor fully, if possible.

21.  $x^2 - 196$

22.  $36y^2 + 6y + 1$

23.  $16a^2 + 40a + 25$

24.  $4x^2 - 36$

25.  $y^2 + 100$

26.  $p^2 - 4pq + 4q^2$

27.  $36x^2 - 81y^2$

28.  $16x^2 + 64y^2$

29.  $m^3 - 25m$

30.  $5n^3 - 30n^2 + 45n$

31.  $64x^2 - 16$

32.  $4b^2 + 121$

33.  $x^4 - 13x^2 + 36$

34.  $x^4 - 7x^2y^2 + 12y^4$

35. Evaluate each difference of squares by factoring.

a)  $38^2 - 32^2$

b)  $55^2 - 45^2$

c)  $760^2 - 240^2$

36. Determine the value(s) of  $k$  such that each trinomial is a perfect square.

a)  $x^2 + kx + 49$

b)  $9x^2 + kx + 25$

c)  $4x^2 - 12x + k$

d)  $kx^2 - 40xy + 16y^2$