

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

1.  $-15y^3 + 12y^2 - 30y + 24$

$$-3(y^2 + 2)(5y - 4)$$

2.  $6x^2 - 4x - 42$

$$2(3x + 7)(x - 3)$$

3.  $y^3 - 16y$

$$y(y + 4)(y - 4)$$

4.  $121x^2 - 64$

$$(11x + 8)(11x - 8)$$

5.  $12a^4 + 4a^2 + 24a + 8$

$$4(3a^4 + a^2 + 6a + 2)$$

6.  $y^3 + 2y^2 - 9y - 18$

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

7.  $8z^3 - 2z^2 - 45z$

$$z(4z + 9)(2z - 5)$$

8.  $5p^2 + 14p + 9$

$$(5p + 9)(p + 1)$$

9.  $42x^3 + 6x^2 + 70x + 10$

$$2(7x + 1)(3x^2 + 5)$$

10.  $9y^4 + 36$

$$9(y^4 + 4)$$

11.  $3m^3 - 5m^2n - 12mn^2$

$$m(3m + 4n)(m - 3n)$$

12.  $16k^2 - 7 - 6k$

$$(8k - 7)(2k + 1)$$

13.  $5x^2 + 13x - 8$

Prime

14.  $-g^2 - 11g - 18$

$$-(g + 9)(g + 2)$$

15.  $x^2 + 14x + 49$

$$(x + 7)^2$$

16.  $a^2 - 10a + 24$

$$(a - 6)(a - 4)$$

17.  $12a^2b + 28ab^2$

$$4ab(3a + 7b)$$

18.  $8x^3 + 216$

$$8(x^3 + 27)$$
  
$$8(x + 3)(x^2 - 3x + 9)$$

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

1.  $x^4 - 10x^2 + 9$

$$(x+3)(x-3)(x+1)(x-1)$$

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

$$(x^2+4)(x^2+9)$$

3.  $x^6 - 7x^3 - 8$

$$(x+1)(x^2-x+1)(x-2)(x^2+2x+4)$$

4.  $2x^{2/3} - 7x^{1/3} - 4$

$$(2x^{1/3}+1)(x^{1/3}-4)$$

5.  $a^6 - 26a^3 - 27$

$$(a-3)(a^2+3a+9)(a+1)(a^2-a+1)$$

6.  $x^3 - 1000$

$$(x-10)(x^2+10x+100)$$

7.  $-6x^3 + 39x^2 - 63x$

$$-3x(2x-7)(x-3)$$

8.  $9x^2 - 24x + 16$

$$(3x-4)^2$$

9.  $16x^2 + 4$

$$4(4x^2+1)$$

10.  $3x^2 - xy - 6x + 2y$

$$(x-2)(3x-4)$$

11.  $9x^4 - 25$

$$(3x^2+5)(3x^2-5)$$

12.  $10x^2 - 19x - 15$

$$(2x-5)(5x+3)$$

13.  $8x^3 - 1$

$$(2x-1)(4x^2+2x+1)$$

14.  $-28v^3 + 16v^2 + 80v$

$$-4v(7v+10)(v-2)$$

15.  $x^3 - 5x^2 - 9x + 45$

$$(x+3)(x-3)(x-5)$$