

## Additional Exercises Answers

### 6.1 Form I

1.  $5x$
2.  $4y^2$
3.  $8a^2$
4.  $3x^2$
5.  $5(x^2 + 4)$
6.  $6a^2(a + 3)$
7.  $y(3y^2 + 5y + 6)$
8.  $6x(4x^3 + 3x - 2)$
9.  $4xy(4x^3y^2 - 5x^2y + 3)$
10.  $2x^3y^2(2x^2 + 5xy^2 - 7y)$
11.  $(y + 14)(x + 6)$
12.  $(b - 7)(a - 3)$
13.  $(x + 10)(11 - y)$
14.  $(x + 4)(y + 2)$
15.  $(a + 3)(b - 6)$
16.  $(x - 5)(y + 1)$
17.  $(x - 2)(x^2 + 2)$
18.  $(3a + 1)(2b + 3)$
19.  $(5x + 2)(y - 2)$
20.  $(x^3 + 2)(x - 1)$

### 6.1 Form II

1.  $4x$
2.  $9xy$
3.  $8a^5b^2$
4.  $6m^3n^2$
5.  $7x^2(2x + 3)$
6.  $x^5(6 - 5x^2)$
7.  $3a^3(8a^6 - 10a^2 + 5)$
8.  $4x^3y^3(5x^3 - 11x^2y + 9y^3)$
9.  $4x^3y^4(10x^5y^4 - 4y^2 - 5x^3)$
10.  $5x^2y^3(3x^4y^2 - 5x^2 + 11xy - 12y)$
11.  $(y - 7)(x - 2)$
12.  $(b + 3)(a^2 + 4)$
13.  $(8 + b)(4a - 1)$
14.  $(x - 2)(x^2 - 3)$
15.  $(x + 5)(y + 4)$
16.  $(b + 2a)(b^2 + 4)$
17.  $(3x + 2)(2y + 5)$
18.  $(7y - 1)(2x - 3)$
19.  $(x - 2)(4x^3 - 3)$
20.  $(5a^2 - 4b^2)(4a + 3b)$

### 6.1 Form III

1.  $4x^2$
2.  $3x^4$
3.  $6x^5y^2$
4.  $3y(7y^2 - 3y + 4)$
5.  $8x(4x^4 + 3x^2y - 12y^3)$
6.  $5a(4a^2 - 3a + 1)$
7.  $8x^4y^3(6x^4y^6 + 5x^2y^3 + 8)$
8.  $16mn(m^2n^2 - 3m - 4n)$
9.  $(x - 3)(x^2 + 6)$
10.  $(x + 7)(y - 1)$
11.  $(2x - 7)(6x^2 + 1)$
12.  $(x - 3)(x^3 - 4x)$
13.  $(a - 4b)(b + 6)$
14.  $(5x + 8)(2y - 1)$
15.  $(3m + 1)(2n - 9)$
16.  $(3x^2 + 5)(3x - 2)$
17.  $(5x^3 + 3x)(4x - 5)$
18.  $(4a^2 - 3)(3a - 4)$
19.  $2x + 4y$
20.  $4x^3 + 2x^2y - 10x - 5y$

### 6.2 Form I

1.  $(x + 4)(x + 1)$
2.  $(x + 3)(x + 4)$
3.  $(y + 2)(y + 6)$
4.  $(a - 4)(a - 2)$
5.  $(x - 5)(x - 3)$
6.  $(y - 7)(y - 1)$
7.  $(a + 3)(a - 2)$
8.  $(x + 5)(x - 8)$
9.  $(m + 1)(m - 4)$
10.  $(x + 2y)(x + 5y)$
11.  $(a + 7b)(a - 3b)$
12.  $(x + 3y)(x - 9y)$
13.  $(a - 5)(a - 6)$
14.  $(x + 7)(x + 4)$
15.  $2(x + 1)(x - 3)$
16.  $3(a - 2)(a - 3)$
17.  $x(x + 6)(x + 1)$
18.  $xy(x + 7)(x - 5)$
19.  $4(x - 2)(x - 6)$
20.  $8a(a + 3)(a + 4)$

### 6.2 Form II

1.  $(x + 8)(x + 2)$
2.  $(x - 4)(x - 6)$
3.  $(x + 5)(x - 6)$
4.  $(a + 3)(a + 7)$
5.  $(y + 12)(y - 3)$
6.  $(x - 6)(x - 9)$
7.  $(x + 9)(x - 4)$
8.  $(a + 11)(a + 3)$
9. Prime
10.  $(x - 1)(x - 10)$
11.  $(y + 7)(y - 6)$
12.  $(a + 5)(a + 4)$
13. Prime
14.  $(y - 8)(y - 4)$
15.  $5(x + 3)(x - 1)$
16.  $4(x + 4)(x + 3)$
17.  $x^2(x - 6)(x + 8)$
18.  $2a(a + 4)(a + 5)$
19.  $xy^2(x - 5)(x + 8)$
20.  $6y(y + 4)(y + 7)$

### 6.2 Form III

- $(x+9)(x+5)$
- $(a-8)(a+3)$
- $(y+7)(y+2)$
- $(x-16)(x-2)$
- $(x-1)(x-12)$
- $(y+8)(y-11)$
- $(a-b)(a+16b)$
- Prime
- $(y-13)(y-3)$
- $(a-17)(a-8)$
- $(x+18y)(x+3y)$
- $(y-6)(y-2)$
- Prime
- $(x-15y)(x+4y)$
- $4x(x^2-2x+4)$
- $5(x-8)(x+2)$
- $3a(a+4)(a+5)$
- $x^2y(x+6)(x-4)$
- $6y(y-9)(y+4)$
- $8x(x^2+7xy+12y^2)$

### 6.3 Form I

- $(x+4)(2x+1)$
- $(3x+1)(x+5)$
- $(4a+3)(a+2)$
- $(x+8)(3x-2)$
- $(2y+5)(y-3)$
- $(3x+1)(x-5)$
- $(4a-5)(a-2)$
- $(6x-1)(x-3)$
- $(2y-3)(3y-2)$
- $(4x+1)(2x+1)$
- $(5x-1)(2x-3)$
- $(6y+5)(2y-1)$
- $(8a+3)(2a-5)$
- $2(3x+1)(x+4)$
- $3(4x-1)(2x-5)$
- $a^2(5a-2)(2a+1)$
- $4y(2y+3)(y+2)$
- $x^2(3x+2)(x-2)$
- $2a(4a+3)(a-3)$
- $5(2x+5)(x+2)$

### 6.3 Form II

- $(3x+1)(2x+3)$
- $(4x+3)(x+2)$
- $(2x+5)(5x+1)$
- $(4x-5)(2x-1)$
- $(3x-4)(4x-3)$
- $(5x+8)(2x-3)$
- $(8x+1)(x+4)$
- $(7x-2)(2x+3)$
- $(6x+5)(x-2)$
- $(4x-5)(4x+3)$
- $(2x+9y)(6x-y)$
- $(8x-3)(2x+5)$
- $(3x+7y)(x-4y)$
- $4(2a+1)(a+1)$
- $6(3a-1)(a+4)$
- $5(4y+1)(y-2)$
- $6x(2x^2+3x+4)$
- $3a(2a+3)(2a-5)$
- $2y(8y-3)(2y+5)$
- $8(3x-4)(2x+1)$

### 6.3 Form III

- $(7x+11)(x+1)$
- $(2a+7)(a-4)$
- Prime
- $(3x+2)(5x+6)$
- $(9x-4)(x+2)$
- $(2a-3)(5a+4)$
- $(8y-1)(3y+4)$
- $(5x+2y)(3x-y)$
- $x^2(x+6)(x+1)$
- $(5b-2)(3b+4)$
- $(5x+9)(4x-3)$
- $2(2x+y)(x-4y)$
- Prime
- $7(2x+3)(3x-2)$
- $(4a+1)(3a+4)$
- $6(3y+2)(y-5)$
- $5(4x+y)(3x+y)$
- $(4x-5)(2x-5)$
- $xy^4(4x+5y)^2$
- $6x+5$

### 6.4 Form I

- $(x+8)(x-8)$
- $(a+1)(a-1)$
- $(y+10)(y-10)$
- $(2x+5)(2x-5)$
- $(x+5)^2$
- $(y+3)^2$
- $(a-4)^2$
- $(a-10)^2$
- $(x-1)(x^2+x+1)$
- $(y+4)(y^2-4y+16)$
- $(x-2y)(x^2+2xy+4y^2)$
- $(a+3b)(a^2-3ab+9b^2)$
- $2(x+1)(x-1)$
- $3(x-4)^2$
- $x(x+4)(x-4)$
- $5(y+2)^2$
- $7(x+2)(x-2)$
- $100(x+2y)(x-2y)$
- $4(a-5)^2$
- $8(x+3)^2$

### 6.4 Form II

- $(x+11)(x-11)$
- $(2a+9)(2a-9)$
- $(4y+13)(4y-13)$
- $(x+15)(x-15)$
- $(x-2)^2$
- Prime
- $(x-5y)^2$
- $(2x+3)^2$
- $(x-10)(x^2+10x+100)$
- $(a+2b)(a^2-2ab+4b^2)$
- $(y-3)(y^2+3y+9)$
- $(5x+3y)^2$
- $5(x+2)(x-2)$
- $3(2x+5)^2$
- Prime
- $ab^2(b+8a)(b-8a)$
- $9y(y+1)(y-1)$
- $3x(2x+7)^2$
- $(x^2+4)(x+2)(x-2)$
- $5(2x+5)(2x-5)$

### 6.4 Form III

- $(7x+8)(7x-8)$
- Prime
- $(x-6)^2$
- $18(a+2)(a-2)$
- $(3x-5)^2$
- $2(4x+3)^2$
- $(a+5b)(a^2-5ab+25b^2)$
- $(7x+1)^2$
- $(2x-9y)^2$
- $(2-m)(4+2m+m^2)$
- $2(4x+7)(4x-7)$
- $16(x^2+4y^2)$
- $5(2x+5y)^2$
- $2x(3x+4y)(9x-12xy+16y^2)$
- Prime
- $2(2a-3b)(4a^2+6ab+9b^2)$
- $(9m+13n)^2$
- $(x^3+9y^2)(x^3-9y^2)$
- $(x+6)(x+10)$
- $25(a-3)^2$

### 6.5 Form I

- $(x+8)(x-8)$
- $(2x+3)(4x-1)$
- $(a-7)^2$
- $3(x^2-6)$
- $(5x+1)(2x+3)$
- $(x+7)(x+2)$
- $x^2(x+6)(x-2)$
- $(x+5)(y-4)$
- $2(a+1)^2$
- $y(y+3)(y-8)$
- $(3m+4)(2m+3)$
- $4(x+4)(x-4)$
- $(x^2+4)(x-8)$
- $7(x-3)(2x+5)$
- $2(y-2)(y^2+2y+4)$
- Prime
- $4x^3(x^2-2)$
- $3xy(2x+1)(5x-4)$
- $5(2x-1)(4x^2+2x+1)$
- $4(y^2-8)(x^2+4)$

### 6.5 Form II

- $(y-4)(y^2+4y+16)$
- $3(x+5)(x-5)$
- $4(2x+3)(2x-5)$
- $(x^2+6)(y-4)$
- $(7x-8)(3x-4)$
- $(6x+5y)(6x-5y)$
- $4(a+4)(a^2-4a+16)$
- $xy(5x^2-4y)$
- $6(x+7)^2$
- $(3x+8)(4x+3)$
- $6(2y-1)(4y^2+2y+1)$
- $3(2x+5)(3y-2)$
- Prime
- $ab^2(a+b)^2$
- $(12x+5)(4x-7)$
- Prime
- $3(a-5b)(a^2+5ab+25b^2)$
- $(4x^2+9)(2x+3)(2x-3)$
- $2x(3x+1)^2$
- $x(y^3+4)(x^2-3)$

### 6.5 Form III

- $(a^2+9)(a+3)(a-3)$
- $(6x-7)(3x+5)$
- $(2y-5)(4y^2+10y+25)$
- $(3x^2-2)(4y^2+3)$
- $11(2a+3)(2a-1)$
- $(8y+5)(8y-5)$
- $xy(5x-6)(x+4)$
- $2a(4a-5b)(5b+4)$
- $(6y-7)^2$
- $(9x^2+25)(3x+5)(3x-5)$
- $5(3a-4)^2$
- Prime
- $xy^2(9x+10y)(2x-5y)$
- $2(3a+2)(9a^2-6a+4)$
- $25(y+2)(y-2)$
- $(5x+12)(2x-9)$
- $(x+y)(x^2-xy+y^2)(x-y)(x^2+xy+y^2)$
- $9(x+4)(5x-2)$
- $(a^2-2b^2)(a^4+2a^2b^2+4b^4)$
- Prime

### 6.6 Form I

1.  $\{-7, 9\}$  2.  $\{-12, -8\}$  3.  $\left\{-\frac{1}{3}, \frac{1}{2}\right\}$  4.  $\{0, 5\}$  5.  $\left\{-3, 0, \frac{4}{5}\right\}$  6.  $\{1, 4\}$   
7.  $\left\{-\frac{2}{3}, 4\right\}$  8.  $\{-4, 5\}$  9.  $\{-6, 2\}$  10.  $\left\{-\frac{2}{3}, \frac{1}{2}\right\}$  11.  $\{-7, 7\}$  12.  $\{4, 5\}$   
13.  $\left\{-\frac{5}{2}, 6\right\}$  14.  $\{-1, 6\}$  15.  $\left\{0, \frac{5}{3}\right\}$  16.  $\left\{\frac{2}{3}\right\}$  17. width: 4 meters; length: 10 meters  
18. 5 seconds

### 6.6 Form II

1.  $\{7, 10\}$  2.  $\{-12, -4\}$  3.  $\left\{-9, \frac{4}{5}\right\}$  4.  $\{-6, 0, 7\}$  5.  $\left\{-3, 0, \frac{7}{4}\right\}$  6.  $\{1, 8\}$   
7.  $\left\{-4, \frac{3}{4}\right\}$  8.  $\left\{-\frac{2}{5}, 5\right\}$  9.  $\left\{-\frac{5}{2}, \frac{5}{2}\right\}$  10.  $\left\{-\frac{1}{3}, 7\right\}$  11.  $\left\{-\frac{7}{2}, \frac{1}{4}\right\}$  12.  $\left\{-\frac{10}{3}, 8\right\}$   
13.  $\left\{-\frac{3}{5}, -\frac{2}{5}\right\}$  14.  $\left\{-\frac{7}{4}, 0\right\}$  15.  $\{0, 3, 5\}$  16.  $\left\{0, \frac{1}{2}, 4\right\}$   
17. width: 9 inches; length 10 inches 18. 2 seconds

### 6.6 Form III

1.  $\left\{-\frac{4}{7}, 2\right\}$  2.  $\left\{\frac{10}{3}, 8\right\}$  3.  $\{-5, 0\}$  4.  $\{-17, 0\}$  5.  $\left\{0, \frac{1}{5}, 8\right\}$  6.  $\left\{-1, \frac{9}{5}\right\}$  7.  $\{-1, 25\}$   
8.  $\left\{0, \frac{6}{13}\right\}$  9.  $\left\{-\frac{5}{4}, \frac{5}{4}\right\}$  10.  $\left\{\frac{5}{2}\right\}$  11.  $\left\{-\frac{5}{2}, 0, \frac{3}{4}\right\}$  12.  $\left\{-\frac{7}{3}, 4\right\}$  13.  $\left\{-2, \frac{2}{5}\right\}$   
14.  $\{-5, 0, 5\}$  15.  $\left\{-8, \frac{9}{2}\right\}$  16.  $\left\{-\frac{2}{5}, 6\right\}$  17. width: 12 feet; length: 18 feet  
18. 6 meters 19.  $2\frac{1}{2}$  seconds 20. 9 minutes