

## Additional Exercises Answers

### 5.1 Form I

1. monomial, 1 2. trinomial, 4 3. trinomial, 5 4. monomial, 0 5.  $5y^5 - 15y^3$   
6.  $12y^7 + 8y^6 + 13y$  7.  $14y^6 + 6y^3 - 7$  8.  $12y^5 + 2y^3$  9.  $21y^4 - 2y^3 + y^2 - y$   
10.  $-12x + 6$  11.  $7y^3 - 13y^2$  12.  $-4x^5 - 11x^4 - 3$  13.  $-12x^4 + 3x^2$   
14.  $-4y^5 - 5y^3 + 35$  15. \$6700

### 5.1 Form II

1. binomial, 3 2. monomial, 0 3. trinomial, 6 4. binomial, 2 5.  $3x^3 - 2x^2 - 5$   
6.  $4x^5 - 4x^3 + 2x + 1$  7.  $4x^4 - x^3 - 5x - 4$  8.  $-3x^5 + 6x^4 + x^3 + 1$  9.  $12x^3 - x^2 + x + 2$   
10.  $-4x^2 + 2x - 4$  11.  $5x^5 - x^2 - 9x + 5$  12.  $6x^4 - 2x^3 - 5x^2 - 2x - 7$  13.  $-14x^3 - x^2$   
14.  $5x^4 + 7x^3 - 9x^2$  15. 360 newtons

### 5.1 Form III

1. binomial, 9 2. trinomial, 3 3. monomial, 0 4. trinomial, 5 5.  $-\frac{1}{2}x^3 + \frac{2}{7}x^2 + \frac{7}{9}$   
6.  $\frac{1}{7}x^3 + \frac{1}{3}x^2 - \frac{3}{4}x + \frac{1}{5}$  7.  $\frac{1}{5}x^2 + \frac{3}{4}x + \frac{31}{20}$  8.  $\frac{5}{7}x^2 - x + \frac{4}{5}$  9.  $\frac{3}{5}x^2 + \frac{4}{15}x - 1$   
10.  $4x^5 - 11x^4 - 2x^3 + 25$  11.  $\frac{1}{4}x^4 + \frac{3}{5}x^3 - \frac{1}{7}$  12.  $\frac{1}{2}x^3 + \frac{1}{3}x^2 - \frac{1}{5}x - \frac{3}{8}$   
13.  $\frac{7}{8}x^3 + \frac{4}{5}x^2 + x - 8$  14.  $2y^6 - 9y^4 - 2y$  15. 3215

### 5.2 Form I

1.  $y^8$  2.  $3^{14}$  3.  $x^{16}$  4.  $5^{24}$  5.  $y^{48}$  6.  $9x^2$  7.  $-64x^{18}$  8.  $-14x^{13}$  9.  $-\frac{1}{56}x^{12}$   
10.  $x^2 + 11x$  11.  $-12x^3 - 48x^2$  12.  $56x^{10} + 49x^8$  13.  $32x^9 + 80x^8 + 88x^2$   
14.  $3x^2 - 23x - 110$  15.  $x^2 - 4x - 32$  16.  $x^3 + 6x - 20$  17.  $x^4 + 2x^3 - 16x^2 - 17x + 70$   
18.  $7x^3 + 62x^2 + 62x + 12$  19.  $y(2y + 7) = 2y^2 + 7y$  20.  $(24x^2 + 12x) \text{ in }^2$

### 5.2 Form II

1.  $x^{10}$  2.  $4^{10}$  3.  $y^{16}$  4.  $6^{12}$  5.  $y^{36}$  6.  $-8x^3$  7.  $25x^8$  8.  $-18x^{14}$  9.  $-\frac{9}{14}x^9$   
10.  $2x^2 - 5x$  11.  $-6x^4 - 15x^3$  12.  $15x^{10} + 10x^9$  13.  $14x^8 + 28x^7 + 98x^3$   
14.  $4x^2 + 25x - 21$  15.  $x^2 + 6x - 27$  16.  $2x^3 - 11x^2 + 24x - 18$   
17.  $x^4 + x^3 + 4x^2 + 21x - 27$  18.  $15x^3 - 13x^2 + 22x - 4$  19.  $x(3x + 4) = 3x^2 + 4x$   
20.  $(18x^2 + 6x) \text{ in }^2$

### 5.2 Form III

- $x^{14}$
- $4^{13}$
- $x^{16}$
- $6^{40}$
- $y^{48}$
- $-64x^3$
- $25x^{10}$
- $-24x^{11}$
- $-\frac{6}{35}x^9$
- $x^3 - 8x^2$
- $-18x^4 - 108x^3$
- $20x^{13} + 30x^7$
- $27x^9 + 63x^8 - 90x^4$
- $6x^2 - 32x + 32$
- $x^2 + 3x - 40$
- $3x^3 - 10x^2 - 16x + 32$
- $x^4 + 15x^2 + 16x - 55$
- $4x^3 - 5x^2 - x + 35$
- $y(3y + 8) = 3y^2 + 8y$
- $(12x^2 + 28x) \ln^2$

### 5.3 Form I

- $x^2 + x - 12$
- $2x^2 + 7x - 4$
- $12x^2 + x - 35$
- $35 - 17x + 2x^2$
- $x^3 + 5x^2 - 25x - 125$
- $a^2 - 4$
- $9 - m^2$
- $25 - 49r^2$
- $9x^2 - \frac{1}{9}$
- $x^4 - 1$
- $17n^2 + 22n + 121$
- $w^2 - 16w + 64$
- $9a^2 - 42a + 49$
- $4x^2 + 2x + \frac{1}{4}$
- $49x^2 - 2x + \frac{1}{49}$
- $64 - 64x + 16m^2$
- $n^6 + 18n^3 + 81$
- $(18x^2 + 9x - 20) \text{ units}^2$
- $(6x + 10) \text{ units}^2$
- $(6x^3 - 35x^2 + 50x) \text{ units}^3$

### 5.3 Form II

- $x^2 + 10x + 16$
- $4x^2 - 15x - 54$
- $12x^2 - 26x - 88$
- $8x^2 - 40x + 42$
- $x^3 + 3x^2 - 9x - 27$
- $a^2 - 1$
- $16 - m^2$
- $9 - 100r^2$
- $25x^2 - \frac{1}{25}$
- $x^4 - 25$
- $n^2 + 32n + 256$
- $w^2 - 20w + 100$
- $64a^2 - 144a + 81$
- $9x^2 + 2x + \frac{1}{9}$
- $25x^2 - 2x + \frac{1}{25}$
- $100m^2 - 220m + 121$
- $n^6 + 24n^3 + 144$
- $(32x^2 - 120x + 100) \text{ units}^2$
- $(-2x + 2) \text{ units}^2$
- $(4x^3 - 38x^2 + 84x) \text{ units}^3$

### 5.3 Form III

- $x^2 + 13x + 36$
- $5x^2 - 27x - 56$
- $12x^2 + 8x - 84$
- $72 - 69x + 15x^2$
- $x^3 + 5x^2 - 7x - 35$
- $a^2 - 169$
- $49 - m^2$
- $25 - 121r^2$
- $64x^2 - \frac{1}{64}$
- $x^4 - 49$
- $n^2 + 42n + 441$
- $w^2 - 28w + 196$
- $81a^2 - 198a + 121$
- $49x^2 + 2x + \frac{1}{49}$
- $81x^2 - 2x + \frac{1}{81}$
- $144 - 192m + 64m^2$
- $n^6 + 30n^3 + 225$
- $(45x^2 - 73x + 22) \text{ units}^2$
- $(17x - 1) \text{ units}^2$
- $(3x^3 - 50x^2 + 75x) \text{ units}^3$

### 5.4 Form I

1.  $-33$
2.  $28$
3.  $12$
4.  $18$
5.  $-95$
6.  $4x^2y^2 + 4y^4$
7.  $5x^4 + 25x^2y^2 + 2y^4$
8.  $4x^2 + xy + 3y^2$
9.  $8x^2 + 3xy + 7y^2$
10.  $x^5 + 8x^4y + 12y^2$
11.  $6x^7y^8$
12.  $-12x^4y^9$
13.  $-12a^2b^8 + 32ab^7$
14.  $3x^2 + 26xy + 35y^2$
15.  $20x^2 - 32xy - 16y^2$
16.  $4x^2 + 28xy + 49y^2$
17.  $25x^2 - 20xy + 4y^2$
18.  $15x^2 + 10x - 42xy + 24y^2 - 8y$
19.  $4a^2 - b^2$
20.  $4x^2 - 4xy + y^2 - 1$

### 5.4 Form II

1.  $-44$
2.  $35$
3.  $18$
4.  $32$
5.  $-125$
6.  $5x^2y^2 + 10y^4$
7.  $-8x^4 + 36x^2y^2$
8.  $5x^2 + 5xy + 10y^2$
9.  $10x^2 + 6xy + 8y^2$
10.  $-3x^5 + 10x^4y + 20y^2$
11.  $64x^7y^7$
12.  $-32x^3y^8$
13.  $-36a^2b^{11} + 66ab^9$
14.  $4x^2 + 50xy + 66y^2$
15.  $35x^2 - 50xy - 40y^2$
16.  $9x^2 + 30xy + 25y^2$
17.  $49x^2 - 126xy + 81y^2$
18.  $42x^2 - 156xy + 7x + 144y^2 - 12y$
19.  $16a^2 - b^2$
20.  $9x^2 - 6xy + y^2 - 25$

### 5.4 Form III

1.  $30$
2.  $53$
3.  $9$
4.  $41$
5.  $65$
6.  $23x^2y^2 + 13y^4$
7.  $9x^4 + 51x^2y^2 + 32y^4$
8.  $11x^2 + 7xy + 9y^2$
9.  $8x^2 + 4xy + 4y^2$
10.  $x^5 + 12x^4y + 18y^2$
11.  $81x^7y^8$
12.  $-48x^3y^9$
13.  $-42a^3b^{10} + 84ab^8$
14.  $3x^2 + 59xy + 38y^2$
15.  $30x^2 - 101xy + 77y^2$
16.  $16x^2 + 64xy + 64y^2$
17.  $64x^2 - 144xy + 81y^2$
18.  $20x^2 + 28x - 107xy + 143y^2 - 77y$
19.  $25a^2 - 4b^2$
20.  $16x^2 - 16xy + 4y^2 - 36$

### 5.5 Form I

1.  $2^2$  or  $4$
2.  $x^2$
3.  $x^2y^4$
4.  $1$
5.  $-1$
6.  $1$
7.  $7$
8.  $1$
9.  $\frac{4}{a^2}$
10.  $\frac{27x^6}{y^3}$
11.  $\frac{4p^2v^4}{s^6}$
12.  $-4x^4$
13.  $5x^3yz$
14.  $-6x^5y^3$
15.  $-\frac{x}{3}$
16.  $\frac{7}{15}$
17.  $3r^6 - 2r^3$
18.  $x^5 - 2x^2$
19.  $3x^4 + 4x^3$
20.  $2x^2y - 3x^4y^2 + 4$

### 5.5 Form II

1.  $4^2$  or  $16$
2.  $x^5$
3.  $x^{11}y^4$
4.  $1$
5.  $-1$
6.  $1$
7.  $12$
8.  $1$
9.  $\frac{9}{a^2}$
10.  $\frac{256x^{12}}{y^8}$
11.  $\frac{4p^6v^8}{s^8}$
12.  $-9x^9$
13.  $5x^8y^9z$
14.  $-8x^{10}y^3$
15.  $-\frac{x^4}{4}$
16.  $\frac{8}{11}$
17.  $3r^7 - 5r^4$
18.  $4x^6 - 2x^3$
19.  $4x^8 + 10x^4$
20.  $4x^4y^4 - 8x^2y^2 - 9$

### 5.5 Form III

1.  $11^6$  2.  $x^4$  3.  $x^2y^3$  4. 1 5. -1 6. 1 7. 18 8. 1 9.  $\frac{49}{a^{10}}$  10.  $\frac{625x^{20}}{y^{12}}$   
11.  $\frac{25p^{12}v^{16}}{s^{14}}$  12.  $8x^{12}$  13.  $3x^{11}y^8z^{11}$  14.  $-2x^3y^3$  15.  $-\frac{7x^5}{12}$  16.  $\frac{17}{23}$  17.  $2x^8 - 3x^5$   
18.  $7x^4 - 6x^2$  19.  $-5x^6 + 3x^3$  20.  $5x^4y^4 - 4x^2y^2 - 9$

### 5.6 Form I

1.  $x+5$  2.  $x-5$  3.  $x+2$  4.  $x+3$  5.  $x-2$  6.  $x+4$  7.  $x-9$  8.  $x+8$  9.  $x+5$   
10.  $x-1$  11.  $3x-2$  12.  $7m-7$  13.  $7m^2-3m+8$  14.  $6r^2+5r+4$  15.  $5x^2-3x-4$

### 5.6 Form II

1.  $x-3-\frac{8}{x-1}$  2.  $x-5-\frac{50}{x-5}$  3.  $x-2-\frac{2}{x+6}$  4.  $x^2+3x+15+\frac{36}{x-3}$  5.  $x^2-2x+4$   
6.  $9x^2-12x+16$  7.  $p-4+\frac{5}{p+8}$  8.  $x+8-\frac{3}{x+3}$  9.  $2x+5$  10.  $3y^2+6y+8+\frac{37}{2y-4}$   
11.  $x^3+2x^2+4x+6+\frac{17}{x-2}$  12.  $3x^2+x+4+\frac{7}{x+1}$  13.  $y^2-y+1$  14.  $r^3-2r^2+4r-8$   
15.  $x^2+2x+3$

### 5.6 Form III

1.  $x-2+\frac{12}{5x-2}$  2.  $2y^2-7y+4$  3.  $y^3-6$  4.  $a^2+5$  5.  $y^3+3y^2+3y+9+\frac{36}{y-3}$   
6.  $y^2-3y+1$  7.  $x^3-2x^2+x-6$  8.  $x^2-3x+2+\frac{4}{x+3}$  9.  $x^2+1$  10.  $y^3-1$   
11.  $x^2-x+1$  12.  $2x^2-4x+2+\frac{17}{3x+2}$  13.  $x^2+4x+16$  14.  $a^2-a+1$   
15.  $-5x^2+5x+4+\frac{18}{-3x+2}$

### 5.7 Form I

1.  $-\frac{1}{9}$  2.  $\frac{5}{6}$  3.  $\frac{16}{27}$  4.  $\frac{x^2}{2}$  5.  $\frac{1}{x^5}$  6.  $\frac{2}{x}$  7.  $\frac{6}{5p^6}$  8.  $\frac{x^4}{y^{10}}$  9.  $8x^2$  10. 1250  
11. 0.03957 12. 0.00020351 13. 4.7 14.  $3.418 \times 10^1$  15.  $1.9 \times 10^4$  16.  $1.4 \times 10^{-3}$   
17.  $3 \times 10^2$  18.  $2 \times 10^{-1}$  19.  $9 \times 10^4$  20.  $2.51 \times 10^{-7}$

### 5.7 Form II

1.  $-\frac{1}{16}$  2.  $\frac{16}{23}$  3.  $\frac{25}{16}$  4.  $\frac{x^3}{3}$  5.  $\frac{1}{x^2}$  6.  $\frac{2}{x^4}$  7.  $\frac{5}{2p^{10}}$  8.  $\frac{x^2}{y^{12}}$  9.  $\frac{27}{x^3}$   
10. 11,800,000 11. 0.000736 12. 0.00000010483 13. 4.48 14.  $6.9735 \times 10^2$   
15.  $6.5 \times 10^7$  16.  $7.948 \times 10^{-5}$  17.  $4 \times 10^{-3}$  18.  $8 \times 10^{-3}$  19.  $4 \times 10^6$  20.  $8.96 \times 10^{-8}$

### 5.7 Form III

1.  $-\frac{1}{216}$  2.  $\frac{19}{88}$  3.  $\frac{343}{125}$  4.  $\frac{x^6}{8}$  5.  $\frac{1}{x^2}$  6.  $\frac{6}{x^4}$  7.  $\frac{7}{3p^{11}}$  8.  $\frac{x^6}{y^8}$  9.  $125x^6$  10. 30500  
11. 0.00918 12. 0.000000011936 13. 5.7 14.  $1.0457 \times 10^3$  15.  $2.9 \times 10^{10}$  16.  $5.7 \times 10^{-6}$   
17.  $4 \times 10^{-2}$  18.  $1.8 \times 10^3$  19.  $6.25 \times 10^{-10}$  20.  $7.7 \times 10^{-7}$