

### A.SSE.A.2: Factoring Polynomials 6

- 1 The expression  $x^2(x+2) - (x+2)$  is equivalent to
  - 1)  $x^2$
  - 2)  $x^2 - 1$
  - 3)  $x^3 + 2x^2 - x + 2$
  - 4)  $(x+1)(x-1)(x+2)$
- 2 When factored completely,  $x^3 + 3x^2 - 4x - 12$  equals
  - 1)  $(x+2)(x-2)(x-3)$
  - 2)  $(x+2)(x-2)(x+3)$
  - 3)  $(x^2 - 4)(x+3)$
  - 4)  $(x^2 - 4)(x-3)$
- 3 When factored completely, the expression  $x^3 - 2x^2 - 9x + 18$  is equivalent to
  - 1)  $(x^2 - 9)(x - 2)$
  - 2)  $(x - 2)(x - 3)(x + 3)$
  - 3)  $(x - 2)^2(x - 3)(x + 3)$
  - 4)  $(x - 3)^2(x - 2)$
- 4 When factored completely, the expression  $3x^3 - 5x^2 - 48x + 80$  is equivalent to
  - 1)  $(x^2 - 16)(3x - 5)$
  - 2)  $(x^2 + 16)(3x - 5)(3x + 5)$
  - 3)  $(x + 4)(x - 4)(3x - 5)$
  - 4)  $(x + 4)(x - 4)(3x - 5)(3x - 5)$
- 5 Factor completely:  $x^3 + 3x^2 + 2x + 6$
- 6 Factor completely:  $x^3 - 6x^2 - 25x + 150$
- 7 Factor:  $a^2 + ab + ac + bc$
- 8 Factor:  $2x - xy + 2y - y^2$
- 9 Factor:  $x^2 - y^2 + x - y$
- 10 Factor:  $a^3 - ab + a^2 - b$
- 11 Factor:  $1 + a - b - ab$
- 12 Factor:  $2a - 1 - 2ab + b$
- 13 Factor:  $ab - 3a - 2b + 6$
- 14 Factor:  $a^2 - 3ab - a + 3b$

15 Factor:  $6a^2 - 3ab - 2ac + bc$

16 Factor:  $a^2 - 2ab - ac + 2bc$

17 Factor:  $1 - x - x^2 + x^3$

18 Factor:  $a^2b - a^2 - ab + a$

19 Factor:  $a^6 - a^4 - a^2 + 1$

20 Factor:  $2a + x - 2a^2x - ax^2$

21 Factor:  $6a^2 + 9ab - 3b - 2a$

22 Factor:  $ab + bc - b^2 - ac$

23 Factor:  $3bc - 4ad + 6ac - 2bd$

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**Answer Section**

1 ANS: 4

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

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

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

REF: 011426a2

2 ANS: 2

$$x^3 + 3x^2 - 4x - 12$$

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

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

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

REF: 061214a2

3 ANS: 2

$$x^3 - 2x^2 - 9x + 18$$

$$x^2(x-2) - 9(x-2)$$

$$(x^2 - 9)(x-2)$$

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

REF: 011511a2

4 ANS: 3

$$3x^3 - 5x^2 - 48x + 80$$

$$x^2(3x-5) - 16(3x-5)$$

$$(x^2 - 16)(3x-5)$$

$$(x+4)(x-4)(3x-5)$$

REF: 011317a2

5 ANS:

$$x^2(x+3) + 2(x+3) = (x^2 + 2)(x+3)$$

REF: 011629a2

6 ANS:

$$x^2(x-6) - 25(x-6)$$

$$(x^2 - 25)(x - 6)$$

$$(x+5)(x-5)(x-6)$$

REF: 061532a2

7 ANS:

$$(a+b)(a+c)$$

REF: 039404a1

8 ANS:

$$(x+y)(2-y)$$

REF: 099806a1

9 ANS:

$$(x+y+1)(x-y)$$

REF: 069802a1

10 ANS:

$$(a^2 - b)(a + 1)$$

REF: 060502a1

11 ANS:

$$(a+1)(1-b)$$

REF: 069303a1

12 ANS:

$$(2a-1)(1-b)$$

REF: 019604a1

13 ANS:

$$(a-2)(b-3)$$

REF: 010502a1

14 ANS:

$$(a-1)(a-3b)$$

REF: 099403a1

15 ANS:

$$(3a-c)(2a-b)$$

REF: 090502a1

16 ANS:

$$(a-c)(a-2b)$$

REF: 010602a1

17 ANS:  
 $(1+x)(1-x)(1-x)$

REF: 019806al

18 ANS:  
 $a(a-1)(b-1)$

REF: 030501al

19 ANS:  
 $(a^2+1)(a+1)(a+1)(a-1)(a-1)$

REF: 010003al

20 ANS:  
 $(2a+x)(1-ax)$

REF: 090402al

21 ANS:  
 $(3a-1)(2a+3b)$

REF: 099904al

22 ANS:  
 $(a-b)(b-c)$

REF: 089703al

23 ANS:  
 $(3c-2d)(2a+b)$

REF: 039703al