

**A.SSE.A.2: Factoring Polynomials 1**

- 1 If  $3x$  is one factor of  $3x^2 - 9x$ , what is the other factor?
  - 1)  $3x$
  - 2)  $x^2 - 6x$
  - 3)  $x - 3$
  - 4)  $x + 3$
  
- 2 What are the factors of the expression  $x^2 + x - 20$ ?
  - 1)  $(x + 5)$  and  $(x + 4)$
  - 2)  $(x + 5)$  and  $(x - 4)$
  - 3)  $(x - 5)$  and  $(x + 4)$
  - 4)  $(x - 5)$  and  $(x - 4)$
  
- 3 Which is a factor of  $x^2 + 5x - 24$ ?
  - 1)  $(x + 4)$
  - 2)  $(x - 4)$
  - 3)  $(x + 3)$
  - 4)  $(x - 3)$
  
- 4 Which expression is a factor of  $x^2 + 2x - 15$ ?
  - 1)  $(x - 3)$
  - 2)  $(x + 3)$
  - 3)  $(x + 15)$
  - 4)  $(x - 5)$
  
- 5 Which expression is a factor of  $n^2 + 3n - 54$ ?
  - 1)  $n + 6$
  - 2)  $n^2 + 9$
  - 3)  $n - 9$
  - 4)  $n + 9$
  
- 6 What are the factors of  $x^2 - 10x - 24$ ?
  - 1)  $(x - 4)(x + 6)$
  - 2)  $(x - 4)(x - 6)$
  - 3)  $(x - 12)(x + 2)$
  - 4)  $(x + 12)(x - 2)$
  
- 7 What are the factors of  $x^2 - 5x + 6$ ?
  - 1)  $(x + 2)$  and  $(x + 3)$
  - 2)  $(x - 2)$  and  $(x - 3)$
  - 3)  $(x + 6)$  and  $(x - 1)$
  - 4)  $(x - 6)$  and  $(x + 1)$
  
- 8 If  $x + 2$  is a factor of  $x^2 + bx + 10$ , what is the value of  $b$ ?
  
- 9 Factor:  $x^2 - 10x + 21$
  
- 10 Factor:  $a^2 - 2a + 1$
  
- 11 Factor:  $a^2 - a - 2$
  
- 12 Factor:  $a^2 - a - 6$
  
- 13 Factor:  $x^2 + x - 12$

14 Factor:  $x^2 + x - 30$

15 Factor:  $a^2 + 4a - 21$

16 Factor:  $x^2 + x + \frac{1}{4}$

- 17 Factored completely, the expression  $2x^2 + 10x - 12$  is equivalent to
- 1)  $2(x - 6)(x + 1)$
  - 2)  $2(x + 6)(x - 1)$
  - 3)  $2(x + 2)(x + 3)$
  - 4)  $2(x - 2)(x - 3)$

- 18 Factored completely, the expression  $3x^2 - 3x - 18$  is equivalent to
- 1)  $3(x^2 - x - 6)$
  - 2)  $3(x - 3)(x + 2)$
  - 3)  $(3x - 9)(x + 2)$
  - 4)  $(3x + 6)(x - 3)$

- 19 When factored completely, the expression  $3x^2 - 9x + 6$  is equivalent to
- 1)  $(3x - 3)(x - 2)$
  - 2)  $(3x + 3)(x - 2)$
  - 3)  $3(x + 1)(x - 2)$
  - 4)  $3(x - 1)(x - 2)$

- 20 Factored completely, the expression  $2y^2 + 12y - 54$  is equivalent to
- 1)  $2(y + 9)(y - 3)$
  - 2)  $2(y - 3)(y - 9)$
  - 3)  $(y + 6)(2y - 9)$
  - 4)  $(2y + 6)(y - 9)$

- 21 Four expressions are shown below.
- I  $2(2x^2 - 2x - 60)$
  - II  $4(x^2 - x - 30)$
  - III  $4(x + 6)(x - 5)$
  - IV  $4x(x - 1) - 120$

- The expression  $4x^2 - 4x - 120$  is equivalent to
- 1) I and II, only
  - 2) II and IV, only
  - 3) I, II, and IV
  - 4) II, III, and IV

22 Factor:  $6 + x - x^2$

23 Factor:  $21 - 4c - c^2$

24 Factor:  $2a^2 - 10a - 28$

25 Factor completely:  $3x^2 + 15x - 42$

26 Factor:  $3x^2 - 6x - 105$

**A.SSE.A.2: Factoring Polynomials 1**  
**Answer Section**

1 ANS: 3

$$3x^2 - 9x = 3x(x - 3)$$

REF: 060421a

2 ANS: 2

REF: 061105ia

3 ANS: 4

$$x^2 + 5x - 24 = (x + 8)(x - 3)$$

REF: spring9806a

4 ANS: 1

$$x^2 + 2x - 15 = (x + 5)(x - 3)$$

REF: 010004a

5 ANS: 4

$$x^2 + 3x - 54 = (x + 9)(x - 6)$$

REF: 060206a

6 ANS: 3

$$x^2 - 10x - 24 = (x - 12)(x + 2)$$

REF: 010318a

7 ANS: 2

$$x^2 - 5x + 6 = (x - 2)(x - 3)$$

REF: 010814a

8 ANS:

7

REF: 010007siii

9 ANS:

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

REF: 019004al

10 ANS:

$$(a - 1)^2$$

REF: 119404al

11 ANS:

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

REF: 119404al

12 ANS:  
 $(a - 3)(a + 2)$

REF: 019506al

13 ANS:  
 $(x + 4)(x - 3)$

REF: 069503al

14 ANS:  
 $(x + 6)(x - 5)$

REF: 060003al

15 ANS:  
 $(a + 7)(a - 3)$

REF: 019604al

16 ANS:  
 $\left(x + \frac{1}{2}\right)\left(x + \frac{1}{2}\right)$

REF: 069607al

17 ANS: 2  
 $2x^2 + 10x - 12 = 2(x^2 + 5x - 6) = 2(x + 6)(x - 1)$

REF: 080806ia

18 ANS: 2                      REF: 061027ia

19 ANS: 4  
 $3x^2 - 9x + 6 = 3(x^2 - 3x + 2) = 3(x - 1)(x - 2)$

REF: 061421ia

20 ANS: 1  
 $2y^2 + 12y - 54 = 2(y^2 + 6y - 27) = 2(y + 9)(y - 3)$

REF: 060623a

21 ANS: 3                      REF: 081509ai

22 ANS:  
 $-(x - 3)(x + 2)$

REF: 089304al

23 ANS:  
 $-(c + 7)(c - 3)$

REF: 030003al

24 ANS:  
 $2(a - 7)(a + 2)$

REF: 089803al

25 ANS:

$$3(x+7)(x-2). \quad 3x^2 + 15x - 42 = 3(x^2 + 5x - 14) = 3(x+7)(x-2)$$

REF: 060535a

26 ANS:

$$3(x-7)(x+5)$$

REF: 099806a1