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

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 Which is a factor of $x^2 + 5x - 24$?
1) $(x + 4)$
2) $(x - 4)$
3) $(x + 3)$
4) $(x - 3)$

3 Which expression is a factor of $x^2 + 2x - 15$?
1) $(x - 3)$
2) $(x + 3)$
3) $(x + 15)$
4) $(x - 5)$

4 Which expression is a factor of $n^2 + 3n - 54$?
1) $n + 6$
2) $n^2 + 9$
3) $n - 9$
4) $n + 9$

5 The expression $x^2 - 10x + 24$ is equivalent to
1) $(x + 12)(x - 2)$
2) $(x - 12)(x + 2)$
3) $(x + 6)(x + 4)$
4) $(x - 6)(x - 4)$

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 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 $(x - 4)$

9 David correctly factored the expression $m^2 - 12m - 64$. Which expression did he write?
1) $(m - 8)(m - 8)$
2) $(m - 8)(m + 8)$
3) $(m - 16)(m + 4)$
4) $(m + 16)(m - 4)$

10 The trinomial $x^2 - 14x + 49$ can be expressed as
1) $(x - 7)^2$
2) $(x + 7)^2$
3) $(x - 7)(x + 7)$
4) $(x - 7)(x + 2)$
11 Factored completely, the expression \(2x^2 + 10x - 12\) is equivalent to
1) \((x - 6)(x + 1)\)
2) \((x + 6)(x - 1)\)
3) \((x + 2)(x + 3)\)
4) \((x - 2)(x - 3)\)

12 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) \((3x + 6)(x - 3)\)

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

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

15 Which expression is not equivalent to \(2x^2 + 10x + 12\)?
1) \((2x + 4)(x + 3)\)
2) \((2x + 2)(x + 2)\)
3) \((2x + 3)(x + 4)\)
4) \((2x + 3)(x + 2)\)

16 Four expressions are shown below.

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2(2x^2 - 2x - 60))</td>
<td>(4(x^2 - x - 30))</td>
<td>(4(x + 6)(x - 5))</td>
<td>(4x(x - 1) - 120)</td>
</tr>
</tbody>
</table>

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

17 When written in factored form, \(4w^2 - 11w - 3\) is equivalent to
1) \((2w + 1)(2w - 3)\)
2) \((2w - 1)(2w + 3)\)
3) \((4w + 1)(w - 3)\)
4) \((4w - 1)(w + 3)\)

18 The area of a rectangle is represented by \(3x^2 - 10x - 8\). Which expression can also be used to represent the area of the same rectangle?
1) \((3x + 2)(x - 4)\)
2) \((3x + 2)(x + 4)\)
3) \((3x + 4)(x - 2)\)
4) \((3x - 4)(x + 2)\)
A.SSE.A.2: Factoring Polynomials 1a
Answer Section

1 ANS: 3
   \[3x^2 - 9x = 3x(x - 3)\]
   REF: 060421a

2 ANS: 4
   \[x^2 + 5x - 24 = (x + 8)(x - 3)\]
   REF: spring9806a

3 ANS: 1
   \[x^2 + 2x - 15 = (x + 5)(x - 3)\]
   REF: 010004a

4 ANS: 4
   \[x^3 + 3x - 54 = (x + 9)(x - 6)\]
   REF: 060206a

5 ANS: 4
   REF: 012012ai

6 ANS: 3
   \[x^3 - 10x - 24 = (x - 12)(x + 2)\]
   REF: 010318a

7 ANS: 2
   \[x^2 - 5x + 6 = (x - 2)(x - 3)\]
   REF: 010814a

8 ANS: 2
   REF: 061105ia

9 ANS: 3
   REF: 081803ai

10 ANS: 1
    REF: 061810ai

11 ANS: 2
   \[2x^2 + 10x - 12 = 2(x^2 + 5x - 6) = 2(x + 6)(x - 1)\]
   REF: 080806ia

12 ANS: 2
    REF: 061027ia

13 ANS: 4
   \[3x^2 - 9x + 6 = 3(x^2 - 3x + 2) = 3(x - 1)(x - 2)\]
   REF: 061421ia

14 ANS: 1
   \[2y^2 + 12y - 54 = 2(y^2 + 6y - 27) = 2(y + 9)(y - 3)\]
   REF: 060623a
15 ANS: 3

\[(2x + 3)(x + 4) = 2x^2 + 11x + 12\]

REF: 081916ai

16 ANS: 3 REF: 081509ai

17 ANS: 3 REF: 061917ai

18 ANS: 1 REF: 011906ai