A.SSE.A.1: Modeling Polynomials

1 What is the constant term of the polynomial $4d + 6 + 3d^2$?
1) 6
2) 2
3) 3
4) 4

2 What is the constant term of the polynomial $2x^3 - x + 5 + 4x^2$?
1) 5
2) 2
3) 3
4) 4

3 When $3x^2 + 7x - 6 + 2x^3$ is written in standard form, the leading coefficient is
1) 7
2) 2
3) 3
4) –6

4 What is the degree of the polynomial $2x + x^3 + 5x^2$?
1) 1
2) 2
3) 3
4) 4

5 What is the degree of the polynomial $2x - x^2 + 4x^3$?
1) 1
2) 2
3) 3
4) 4

6 What is the degree of the polynomial $5x - 3x^2 - 1 + 7x^3$?
1) 1
2) 2
3) 3
4) 5

7 Which trinomial is written in standard form and has a constant term of five?
1) $x^5 - 4x^2 + 10$
2) $2x^2 + 6x^4 + 5$
3) $5x^4 - 3x^2 + 1$
4) $4x^5 - 8x^2 + 5$

8 Which expression has a degree of 3 and a leading coefficient of 2?
1) $2x^2 + 3x + 1$
2) $6x^3 + 3x^2 - 2x$
3) $3x^2 + 2x + 2$
4) $2x^3 + x^2 + 4x$

9 A student creates a fourth-degree trinomial with a leading coefficient of 2 and a constant value of 5. The trinomial could be
1) $2x^4 + 3x^2 + 5$
2) $2x^4 + 5x + 3$
3) $4x^2 - 3x + 5$
4) $4x^3 - 5x^2 + 3$

10 An expression of the fifth degree is written with a leading coefficient of seven and a constant of six. Which expression is correctly written for these conditions?
1) $6x^5 + x^4 + 7$
2) $7x^6 - 6x^4 + 5$
3) $6x^7 - x^5 + 5$
4) $7x^5 + 2x^2 + 6$

11 Which polynomial has a leading coefficient of 4 and a degree of 3?
1) $3x^4 - 2x^2 + 4x - 7$
2) $4 + x - 4x^2 + 5x^3$
3) $4x^4 - 3x^3 + 2x^2$
4) $2x + x^2 + 4x^3$

12 Students were asked to write an expression which had a leading coefficient of 3 and a constant term of –4. Which response is correct?
1) $3 - 2x^3 - 4x$
2) $7x^3 - 3x^5 - 4$
3) $4 - 7x + 3x^3$
4) $-4x^2 + 3x^4 - 4$

13 An example of a sixth-degree polynomial with a leading coefficient of seven and a constant term of four is
1) $6x^7 - x^5 + 2x + 4$
2) $4 + x + 7x^6 - 3x^2$
3) $7x^4 + 6 + x^2$
4) $5x + 4x^6 + 7$

14 Students were asked to write a polynomial given the following conditions:

- the degree of the expression is 3
- the leading coefficient is 2
- the constant term is −6

Which expression satisfies all three conditions?

1) $4x - 6 + 3x^2$
2) $3x^2 - 6x + 4$
3) $4 - 6x + 2x^3$
4) $4x^2 + 2x^3 - 6$

15 Students were asked to write $2x^3 + 3x + 4x^2 + 1$ in standard form. Four student responses are shown below.

Alexa: $4x^2 + 3x + 2x^3 + 1$
Carol: $2x^3 + 3x + 4x^2 + 1$
Ryan: $2x^3 + 4x^2 + 3x + 1$
Eric: $1 + 2x^3 + 3x + 4x^2$

Which student's response is correct?

1) Alexa
2) Carol
3) Ryan
4) Eric

16 Students were asked to write $6x^5 + 8x - 3x^3 + 7x^7$ in standard form. Shown below are four student responses.

Anne: $7x^7 + 6x^5 - 3x^3 + 8x$
Bob: $-3x^3 + 6x^5 + 7x^7 + 8x$
Carrie: $8x + 7x^7 + 6x^5 - 3x^3$
Dylan: $8x - 3x^3 + 6x^5 + 7x^7$

Which student is correct?

1) Anne
2) Bob
3) Carrie
4) Dylan

17 Which statement is correct about the polynomial $3x^2 + 5x - 2$?

1) It is a third-degree polynomial with a constant term of −2.
2) It is a third-degree polynomial with a leading coefficient of 3.
3) It is a second-degree polynomial with a constant term of 2.
4) It is a second-degree polynomial with a leading coefficient of 3.

18 Mrs. Allard asked her students to identify which of the polynomials below are in standard form and explain why.

I. $15x^4 - 6x + 3x^2 - 1$
II. $12x^3 + 8x + 4$
III. $2x^5 + 8x^2 + 10x$

Which student's response is correct?

1) Tyler said I and II because the coefficients are decreasing.
2) Susan said only II because all the numbers are decreasing.
3) Fred said II and III because the exponents are decreasing.
4) Alyssa said II and III because they each have three terms.

19 When $(x)(x - 5)(2x + 3)$ is expressed as a polynomial in standard form, which statement about the resulting polynomial is true?

1) The constant term is 2.
2) The leading coefficient is 2.
3) The degree is 2.
4) The number of terms is 2.

20 When multiplying polynomials for a math assignment, Pat found the product to be $-4x + 8x^2 - 2x^3 + 5$. He then had to state the leading coefficient of this polynomial. Pat wrote down −4. Do you agree with Pat's answer? Explain your reasoning.

A.SSE.A.1: Modeling Polynomials
Answer Section

1 ANS: 1 REF: 082208ai
2 ANS: 1 REF: 012504ai
3 ANS: 2
$2x^3 + 3x^2 + 7x - 6$

REF: 082216ai
4 ANS: 3 REF: 082309ai
5 ANS: 3 REF: 062408ai
6 ANS: 3 REF: 012414ai
7 ANS: 4 REF: 082507ai
8 ANS: 4 REF: 062505ai
9 ANS: 1 REF: 082405ai
10 ANS: 4 REF: 061602ia
11 ANS: 4
$4x^3 + x^2 + 2x$

REF: 012024ai
12 ANS: 4
$3x^4 - 4x^2 - 4$

REF: 062122ai
13 ANS: 2 REF: 062220ai
14 ANS: 4 REF: 012606ai
15 ANS: 3 REF: 012303ai
16 ANS: 1 REF: 061905ai
17 ANS: 4 REF: 062323ai
18 ANS: 3 REF: 061819ai
19 ANS: 2
$(x^2 - 5x)(2x + 3) = 2x^3 + 3x^2 - 10x^2 - 15x = 2x^3 - 7x^2 - 15x$

REF: 081912ai
20 ANS:
No, –2 is the coefficient of the term with the highest power.

REF: 081628ai