A.SSE.A.1: Modeling Expressions 1a

1 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) $7x^5 + 2x^2 + 6$

2 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.

3 Konnor wants to burn 250 Calories while exercising for 45 minutes at the gym. On the treadmill, he can burn 6 Cal/min. On the stationary bike, he can burn 5 Cal/min. If t represents the number of minutes on the treadmill and b represents the number of minutes on the stationary bike, which expression represents the number of Calories that Konnor can burn on the stationary bike?
1) b
2) $5b$
3) $45 - b$
4) $250 - 5b$

4 Which expression represents "5 less than twice x"?
1) $2x - 5$
2) $5 - 2x$
3) $2(5 - x)$
4) $2(x - 5)$

5 A correct translation of "six less than twice the value of x" is
1) $2x < 6$
2) $2x - 6$
3) $6 < 2x$
4) $6 - 2x$

6 Which algebraic expression represents 15 less than x divided by 9?
1) $\frac{x}{9} - 15$
2) $9x - 15$
3) $15 - \frac{x}{9}$
4) $15 - 9x$

7 When translated into symbols, "three less than half of a number" is
1) $3 - \frac{1}{2}x$
2) $\frac{1}{2}x - 3$
3) $3 < \frac{1}{2}x$
4) $\frac{1}{2}x < 3$

8 To watch a varsity basketball game, spectators must buy a ticket at the door. The cost of an adult ticket is \$3.00 and the cost of a student ticket is \$1.50. If the number of adult tickets sold is represented by a and student tickets sold by s, which expression represents the amount of money collected at the door from the ticket sales?
1) $4.50as$
2) $4.50(a+s)$
3) $(3.00a)(1.50s)$
4) $3.00a+1.50s$

9 Mr. Turner bought x boxes of pencils. Each box holds 25 pencils. He left 3 boxes of pencils at home and took the rest to school. Which expression represents the total number of pencils he took to school?
1) $22x$
2) $25x-3$
3) $25-3x$
4) $25x-75$

10 Marie currently has a collection of 58 stamps. If she buys s stamps each week for w weeks, which expression represents the total number of stamps she will have?
1) $58sw$
2) $58+sw$
3) $58s+w$
4) $58+s+w$

11 Tim ate four more cookies than Alice. Bob ate twice as many cookies as Tim. If x represents the number of cookies Alice ate, which expression represents the number of cookies Bob ate?
1) $2+(x+4)$
2) $2x+4$
3) $2(x+4)$
4) $4(x+2)$

12 Timmy bought a skateboard and two helmets for a total of d dollars. If each helmet cost h dollars, the cost of the skateboard could be represented by
1) $2dh$
2) $\frac{dh}{2}$
3) $d-2h$
4) $d-\frac{h}{2}$

13 Marcy determined that her father's age is four less than three times her age. If x represents Marcy's age, which expression represents her father's age?
1) $3x-4$
2) $3(x-4)$
3) $4x-3$
4) $4-3x$

14 If Angelina's weekly allowance is d dollars, which expression represents her allowance, in dollars, for x weeks?
1) dx
2) $7dx$
3) $x+7d$
4) $\frac{d}{x}$

15 Andy has \$310 in his account. Each week, w, he withdraws \$30 for his expenses. Which expression could be used if he wanted to find out how much money he had left after 8 weeks?
1) $310-8w$
2) $280+30(w-1)$
3) $310w-30$
4) $280-30(w-1)$

16 Which expression represents the number of hours in w weeks and d days?
1) $7w + 12d$
2) $84w + 24d$
3) $168w + 24d$
4) $168w + 60d$

17 Jose wants to ride his bike a total of 50 miles this weekend. If he rides m miles on Saturday, which expression represents the number of miles he must ride on Sunday?
1) $m - 50$
2) $m + 50$
3) $50 - m$
4) $50m$

18 Owino gets paid $280 per week plus 5% commission on all sales for selling electronic equipment. If he sells n dollars worth of electronic equipment in one week, which algebraic expression represents the amount of money he will earn that week?
1) $280n + 5$
2) $280n + 0.05$
3) $280 + 0.05n$
4) $280 + 5n$

19 Julie has three children whose ages are consecutive odd integers. If x represents the youngest child's age, which expression represents the sum of her children's ages?
1) $3x + 3$
2) $3x + 4$
3) $3x + 5$
4) $3x + 6$

20 What is the perimeter of a regular pentagon with a side whose length is $x + 4$?
1) $x^2 + 16$
2) $4x + 16$
3) $5x + 4$
4) $5x + 20$

21 The length of a rectangular room is 7 less than three times the width, w, of the room. Which expression represents the area of the room?
1) $3w - 4$
2) $3w - 7$
3) $3w^2 - 4w$
4) $3w^2 - 7w$

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Answer Section

1 ANS: 4 REF: 061602ai
2 ANS:
No, –2 is the coefficient of the term with the highest power.

REF: 081628ai
3 ANS: 2 REF: 081712ai
4 ANS: 1 REF: 061301ia
5 ANS: 2 REF: 081215ia
6 ANS: 1 REF: 081110ia
7 ANS: 2 REF: 061617ia
8 ANS: 4 REF: 081503ai
9 ANS: 4
$25(x-3) = 25x - 75$

REF: 060823ia
10 ANS: 2 REF: 081305ia
11 ANS: 3 REF: 011104ia
12 ANS: 3 REF: 011205ia
13 ANS: 1 REF: 061204ia
14 ANS: 1 REF: 011303ia
15 ANS: 4 REF: 011718ai
16 ANS: 3 REF: 061323ia
17 ANS: 3 REF: 011507ia
18 ANS: 3 REF: 061519ia
19 ANS: 4
$x + x + 2 + x + 4 = 3x + 6$

REF: 011430ia
20 ANS: 4
$5(x+4) = 5x + 20$

REF: 081013ia
21 ANS: 4
$A = lw = (3w - 7)(w) = 3w^2 - 7w$

REF: 010924ia