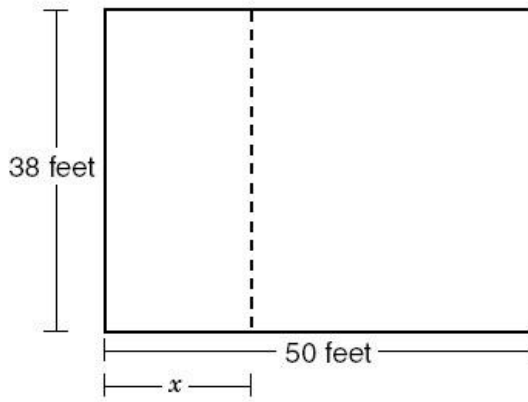# Algebra 1 STAAR EOC Review #3
Reporting Category 2: Properties and Attributes of Functions
A.3ab, A.4abc

RC 2 A.03A

1. A large room has the dimensions shown below. A partition is to be installed so that 2 classes can use it. The area of the smaller classroom is 38x. How can the area of the larger classrooms be expressed in terms of x?

38 feet

50 feet

x

A. $50 - 38x$

B. $\dfrac{38(50)}{3x}$

C. $\dfrac{(50 - x)}{38}$

D. $38(50 - x)$

2. A sporting-goods store sold a total of 80 backpacks at the beginning of a new school year. Each backpack sold for either $35 or $50, not including tax. If x represents the number of $35 backpacks the store sold, which expression represents the total amount of money in dollars from the sales of the two kinds of backpacks, not including tax?

    F. $35x + 50(x - 80)$
    G. $50x + 35(80 - x)$
    H. $35x + 50(80 - x)$
    J. $50x + 35(x - 80)$

3. Walker is taking a strength-training class. He hopes to increase the number of pounds that he can lift by 25% in 6 weeks. If x represents the number of pounds Walker was able to lift at the time he started the class, which expression best represents the number of pounds he wants to be able to lift in 6 weeks?

    A. $6x + 0.25x$
    B. $x + 0.25x$
    C. $6(x + 0.25x)$
    D. $x + 25x$

4. Which algebraic expression is equivalent to the phrase "5 less than the sum of x and y"?

    F. $(x + y) - 5$
    G. $(x - y) + 5$
    H. $5 - (x + y)$
    J. $5 - x + y$

RC 2 A.03B

5. The figures show a pattern of dark tiles and white tiles that can be described by a relationship between 2 variables.
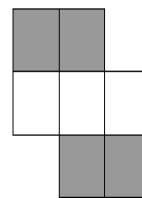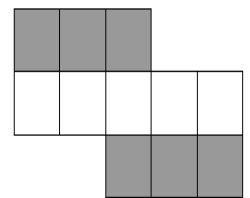

Figure 1   Figure 2   Figure 3

Which rule relates d, the number of dark tiles, to w, the number of white tiles?

    A. $d = 2w$
    B. $w = d - 1$
    C. $d = 2w - 2$
    D. $w = \dfrac{1}{2}d + 1$

6. Sue wants to write an expression that will always produce an even integer. Which of the following will always produce and even integer for any given n?

   F. $2n + 1$
   G. $2n - 1$
   H. $n + 2$
   J. $2n$

7. Which expression can be used to find the values of $s(n)$ in the table below?

n	1	2	3	4	5	6
$s(n)$	5	8	11	14	?	?

   A. $3n$
   B. $5n$
   C. $n + 4$
   D. $3n + 2$

8. The table below shows the value of a term in a given position in a sequence of numbers that follows a pattern.

Position	Value of Term
1	$-2\frac{1}{2}$
2	-1
3	$1\frac{1}{2}$
4	5
5	$9\frac{1}{2}$
n	?

Which expression best represents the value of the nth term?

   F. $\dfrac{n^2}{2} - 3$

   G. $\dfrac{n^2 - 11}{4}$

   H. $\dfrac{3n^2}{2} - 4$

   J. $\dfrac{2n^2 - 17}{6}$

9. In the quadratic equation $x^2 - x + c = 0$, c represents an unknown constant. If $x = -3$ is one of the solutions to this equation, what is the value of c?

   Record your answer and fill in the bubbles on your answer document.

10. If a rectangular poster has an area of $(2x^2 - 9x + 10)$ square units, which of the following could describe the dimensions of the poster?

    F. $(2x - 2)$ units by $(x - 5)$ units
    G. $(2x - 10)$ units by $(x + 1)$ units
    H. $(2x - 5)$ units by $(x - 2)$ units
    J. $(2x - 1)$ units by $(x - 10)$ units

11. A rectangle has a length of $2x + 1$ and a width of $5x - 4$. Which expression best describes the area of the rectangle?

    A. $7x - 3$
    B. $14x - 6$
    C. $10x^2 - 3x - 4$
    D. $10x^2 + 13x - 4$

12. The area of a rectangle is $3x^2 + 14x + 8$, and the width is $x + 4$. Which expression best describes the rectangle's length?

    F. $3x + 2$
    G. $2x + 4$
    H. $2x + 2$
    J. $3x - 2$

13. Look at the polynomial expression modeled below with algebra tiles.

$x^2 + 6x + 5$ $x^2 + 5x + 4$

+

Key

x^2 x 1
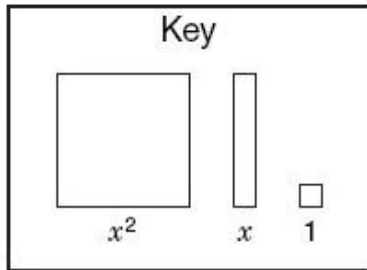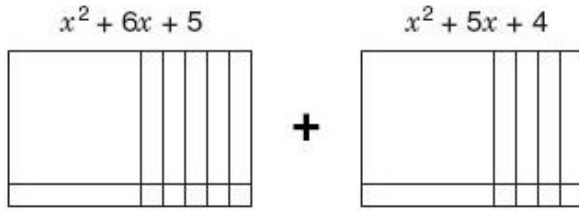
Which of the following expressions is equivalent to the polynomial expression modeled above?

A. $2x^2 + 7x + 9$
B. $2x^4 + 11x^2 + 9$
C. $2x^4 + 30x^2 + 20$
D. $2x^2 + 11x + 9$

14. A function is described by the equation $y = 2x^2 - 5x - 3$, in which y is dependent on x. If a value for the independent variable is selected from the set {-4, -1,0,2,5}, which of the following is a corresponding dependent value?

F.   9
G.   -6
H.   -5
J.   0

15. Solve the equation $2a - 6 + 5a = 3a + 10$ for a. Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

16. After a ball is dropped, the rebound height of each bounce decreases. The equation $y = 5(0.8)^x$ shows the relationship between x, then number of bounces, and y, the height of the bounce, for a certain ball. What is the approximate height of the fifth bounce of this ball to the nearest tenth of a unit?

F.   20.0 units
G.   4.0 units
H.   1.6 units
J.   1.3 units

17. In the equation $y = 2x^2 - 5x - 18$, which is a value of x when $y = 0$?

A.   -18
B. $1\dfrac{1}{2}$
C.   2
D. $4\dfrac{1}{2}$

RC 2 A.04B

18. Which expression is equivalent to $(5n - 2)3n - (5n - 2)(n - 1)$?

F. $n - 1$
G. $3n^2 - 3n$
H. $10n^2 - 13n + 2$
J. $10n^2 + n - 2$

19. Simplify the algebraic expression $5(x + 3)(x + 2) - 3(x^2 + 2x +1)$

A. $2x^2 + 7$
B. $2x^2 + 27$
C. $2x^2 + 7x + 7$
D. $2x^2 + 19x + 27$

20. Simplify the algebraic expression
$$\frac{3}{5}\left(15a^2b - 40ab^2\right) + \frac{2}{3}\left(33ab^2 - 6a^2b\right)$$

F. $5a^2b - 2ab^2$
G. $31a^2b - 28ab^2$
H. $a^2b + 3ab^2$
J. $15a^2b + 18ab^2$

21. Some students want to order shirts with their school logo. One company charges $9.65 per shirt plus a setup fee of $43. Another company charges $8.40 per shirt plus a $58 fee. For what number of shirts would the cost be the same?

    A. 6
    B. 12
    C. 81
    D. 159

RC 2 A.04C

22. Mrs. Travis wants to have a clown deliver balloons to her secretary's office. Clowns R Fun charges $1.25 per balloon and $6 for delivery. Singing Balloons charges $1.95 per balloon and $2 for delivery. What is the minimum number of balloons Mrs. Travis needs to purchase in order for Clowns R Fun to have a lower price than Singing Balloons?

    F. 5
    G. 6
    H. 11
    J. 12

23. Lon caught 24 trout and bass while on a fishing trip. The total weight of his catch was 137 pounds. The average weight of a trout was 2.5 pounds, and the average weight of a bass was 8 pounds. Which system of equation can be used to find t, the number of trout, and b, the number of bass, that Lon caught?

    A. $t = 24 + b$
       $2.5 + 8b = 137$
    B. $t + b = 24$
       $2.5t + 8b = 137$
    C. $t + b = 137$
       $2.5t + 8b = 24$
    D. $t = 137 + b$
       $2.5t + 8b = 24$