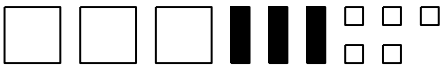
TASK 1: Review Polynomial Unit Test **Name:_____**

Multiple Choice: *Identify the choice that best completes the statement or answers the question.*

____ 1. A large white square represents an x^2-tile, a black rectangle represents a $-x$-tile, and a small white square represents a 1-tile.

Write the polynomial represented by this set of algebra tiles.



a. $3x^2 - x^3 + 5$ b. $-3x^2 + 3x + 5$ c. $3x^2 - 3x + 5$ d. $3x - 3x^2 + 5$

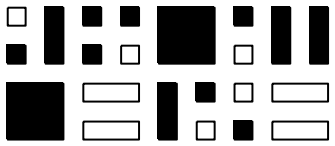
____ 2. How many terms are in the polynomial $10x^2 + 5x - 11$?
a. 10 b. 1 c. 11 d. 3

____ 3. Which of the following expressions is a binomial with degree 2?
i) $x^2 - 6x + 5$
ii) $3x^2$
iii) $5x^2 - 2x$
iv) $\frac{1}{x^2} - 7$
a. i b. ii c. iv d. iii

____ 4. What algebra tiles would you use to model the polynomial $6 - 4x^2 + 4x$?
a. 6 x^2-tiles, 4 $-x$-tiles, and 4 1-tiles
b. 2 x^2-tiles, 4 x-tiles
c. 4 $-x^2$-tiles, 4 x-tiles, and 6 1-tiles
d. 4 x^2-tiles, 4 $-x$-tiles, and 6 -1-tiles

____ 5. A large white square represents an x^2-tile, a large black square represents a $-x^2$-tile, a white rectangle represents an x-tile, a black rectangle represents a $-x$-tile, a small white square represents a 1-tile, and a small black square represents a -1-tile.

Write the simplified polynomial.



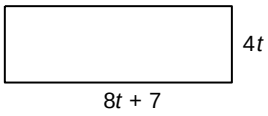
a. $2x^2 + 2$ c. $2x^2 + x + 2$
b. $-2x^2 + x - 2$ d. $-2x^2 - 2$

____ 6. Simplify: $10x^2 - 8 + 3x + 5 - 6x^2 - 6x$
a. $4x^2 - 3x + 3$ c. $4x^2 + 3x + 3$
b. $4x^2 - 3x - 3$ d. $4x^4 - 3x^2 - 3$

____ 7. Add: $(-3x-7)+(5-2x)$

a. $-5x-2$ b. $-5x+12$ c. $-5x+2$ d. $5x+2$

____ 8. Write the perimeter of this rectangle as a polynomial in simplest form.



a. $12t+7$ b. $24t+14$ c. $38t$ d. $24t+7$

____ 9. Subtract: $(6x-3)-(11x-8)$

a. $-5x+11$ b. $-5x+5$ c. $-5x-5$ d. $-5x-11$

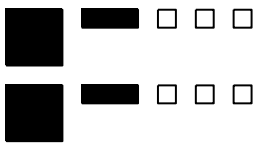
____ 10. Subtract: $(3x-7x^2+2)-(4x^2-5+6x)$

a. $-11x^2+3x-7$ c. $-11x^2-3x+7$

b. $-11x^2-9x-3$ d. $11x^2+3x-7$

____ 11. A large black square represents a $-x^2$ tile, a black rectangle represents an $-x$-tile, and a small white square represents a 1-tile.

What is the division sentence modelled by this set of algebra tiles?



a. $\dfrac{-32x^2-32x+16}{2}$ b. $\dfrac{-2x^2-2x+6}{2}$ c. $\dfrac{-32x^2+32x+48}{16}$ d. $\dfrac{2x^2-2x+6}{2}$

____ 12. Multiply: $(-2)(4c^2-6c-7)$

a. $-8c^2-12c-14$ c. $-8c^2+12c+14$

b. $2c^2-8c-9$ d. $-8c^2-6c-7$

____ 13. Divide: $\dfrac{-12y^2-6y-9}{-3}$

a. $-15y^2-9y-12$ c. $4y^2-6y-9$

b. $4y^2+2y+3$ d. $-4y^2-2y-3$

Short Answer

14. Identify the polynomials that can be represented by the same set of algebra tiles.

i) $v^2 - 4 + 6v$

ii) $4 + r^2 - 6r$

iii) $t^2 - 6t - 4$

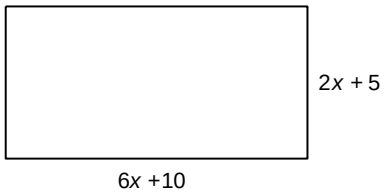
iv) $6x + x^2 - 4$

v) $y^2 - 6y + 4$

15. A large white square represents an x^2-tile, a large black square represents a $-x^2$-tile, a small white square represents a 1-tile, and a small black square represents a −1-tile.

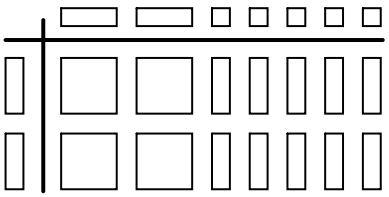
    Write the polynomial sum modelled by this set of tiles.

16. Write the perimeter of this rectangle as a polynomial in simplest form.



17. A large white square represents an x^2-tile, a white rectangle represents an x-tile, and a small white square represents a 1-tile.

    Write a division sentence that is modelled by these algebra tiles.



18. Here is a student's solution for this question:
    Divide: $(9x + 12) \div (-3)$

$(9x + 12) \div (-3)$

$= \frac{9x}{-3} + \frac{12}{-3}$

$= 3x - 4$

Identify any errors in the solution.

19. Here is a student's solution for this question:
Multiply: $4x(-3x-5)$

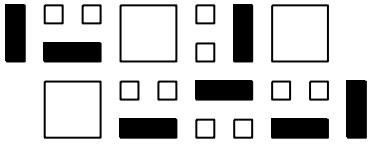
$4x(-3x-5)$
$= -12x^2 - 20$

Identify any errors in the solution.

Problem

20. A large white square represents an x^2-tile, a large black square represents a $-x^2$-tile, a white rectangle represents an x-tile, a black rectangle represents a $-x$-tile, a small white square represents a 1-tile, and a small black square represents a -1-tile.

Write the polynomial represented by this set of algebra tiles.



21. A large white square represents an x^2-tile, a large black square represents a $-x^2$-tile, a white rectangle represents an x-tile, a black rectangle represents a $-x$-tile, a small white square represents a 1-tile, and a small black square represents a -1-tile.
    a) Sketch algebra tiles to model the polynomial $3x^2 - 4 + 2x$.
    Identify the variable, degree, number of terms, coefficient, and constant term.
    b) Write another polynomial that is equivalent to the polynomial in part a. Explain how you know that the polynomials are equivalent.

22. Write a polynomial with the given variable, degree, coefficient, and number of terms.
    a) Variable: p; degree: 2; coefficients: 2, -4; number of terms: 2
    b) Variable: c; degree: 1; coefficient: 6; number of terms: 1
    c) Variable: t; degree 2, coefficients: -3, 7; number of terms: 3; constant: 5

23. Identify the equivalent polynomials. Explain how you know.
    i) $3x^2 + 3x - 4 + 2x^2 - 6x - 3$
    ii) $x^2 + 12 + 2x - 5 - 5x + 4x^2$
    iii) $3x^2 - 6x + 2x^2 + 3 + 3x - 10$

24. A student subtracted like this:
$(8x^2 - 3x + 7) - (5x^2 + 5x - 5)$
$= 8x^2 - 3x + 7 - 5x^2 + 5x - 5$
$= 8x^2 - 5x^2 - 3x + 5x + 7 - 5$
$= 3x^2 + 2x + 2$

    a) Explain why the solution is incorrect.
    b) What is the correct answer? Show your work.

TASK 1: Review Poly Unit Test **Answer Section**

MULTIPLE CHOICE

1. ANS: C
2. ANS: D
3. ANS: D
4. ANS: C
5. ANS: D
6. ANS: B
7. ANS: A
8. ANS: B
9. ANS: B
10. ANS: C
11. ANS: B
12. ANS: C
13. ANS: B

SHORT ANSWER

14. ANS:
    Parts i and iv can be modelled by the same set of algebra tiles.
    Parts ii and v can be modelled by the same set of algebra tiles.

15. ANS:
$-x^2 + 1$

16. ANS:
$16x + 30$

17. ANS:
$(4x^2 + 10x) \div 2x = 2x + 5$

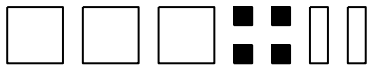
18. ANS:
Error:
The answer should be $-3x - 4$, not $3x - 4$.

19. ANS:
Error:
–5 should be multiplied by 4*x* to give –20*x*.

PROBLEM

20. ANS:
$3x^2 - 7x + 10$

21. ANS:
a) Variable: *x*; degree: 2; number of terms: 3; coefficients: 3, 2; constant term: –4.



b) $3x^2 + 2x - 4$; I know the polynomials are equivalent because they can be represented by the same algebra tiles.

22. ANS:
    a) $2p^2 - 4p$
    b) $6c$
    c) $-3t^2 + 7t + 5$

23. ANS:
    i) $3x^2 + 3x - 4 + 2x^2 - 6x - 3$
    $= 3x^2 + 2x^2 + 3x - 6x - 4 - 3$
    $= 5x^2 - 3x - 7$
    ii) $x^2 + 12 + 2x - 5 - 5x + 4x^2$
    $= x^2 + 4x^2 + 2x - 5x + 12 - 5$
    $= 5x^2 - 3x + 7$
    iii) $3x^2 - 6x + 2x^2 + 3 + 3x - 10$
    $= 3x^2 + 2x^2 - 6x + 3x + 3 - 10$
    $= 5x^2 - 3x - 7$

    Polynomials i and iii are equivalent because they are the same polynomial in simplified form.

24. ANS:
    a) The student did not change the signs of $+5x$ and -5 after removing the second pair of brackets.
    b) Correction:
    $(8x^2 - 3x + 7) - (5x^2 + 5x - 5)$
    $= 8x^2 - 3x + 7 - 5x^2 - 5x + 5$
    $= 8x^2 - 5x^2 - 3x - 5x + 7 + 5$
    $= 3x^2 - 8x + 12$