Name: _____

Date: _____

Review for Grade 9 Math Exam on Unit 5 - Polynomials

Multiple Choice

Identify the choice that best completes the statement or answers the question.

B 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. $2x^2 - 3x + 4$

a. $-2x^2 + 3x + 4$ b. $2x^2 - 3x + 4$ c. $2x^2 - x^3 + 4$ d. $2x - 3x^2 + 4$

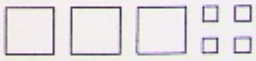
B 2. A large white square represents an x^2-tile, a large black square represents a $-x^2$-tile, a small white square represents a 1-tile, and a small black square represents a -1-tile.

How would you model the polynomial $-3x^2 - 4$ with algebra tiles?

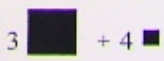
a.

b.

c.

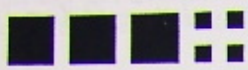


d.



D 3. Which of the following expressions are polynomials?

b.



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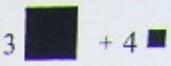


D 3. Which of the following expressions are polynomials?

i) $\frac{1}{2}x$ ✓

ii) $1-5.5n^2$ ✓

X iii) $2\sqrt{t}$

iv) 3.5 ✓

a. i, iii, and iv b. ii and iv c. i, ii, and iii (d.) i, ii, and iv

A 4. Identify the polynomials that can be represented by the same set of algebra tiles.

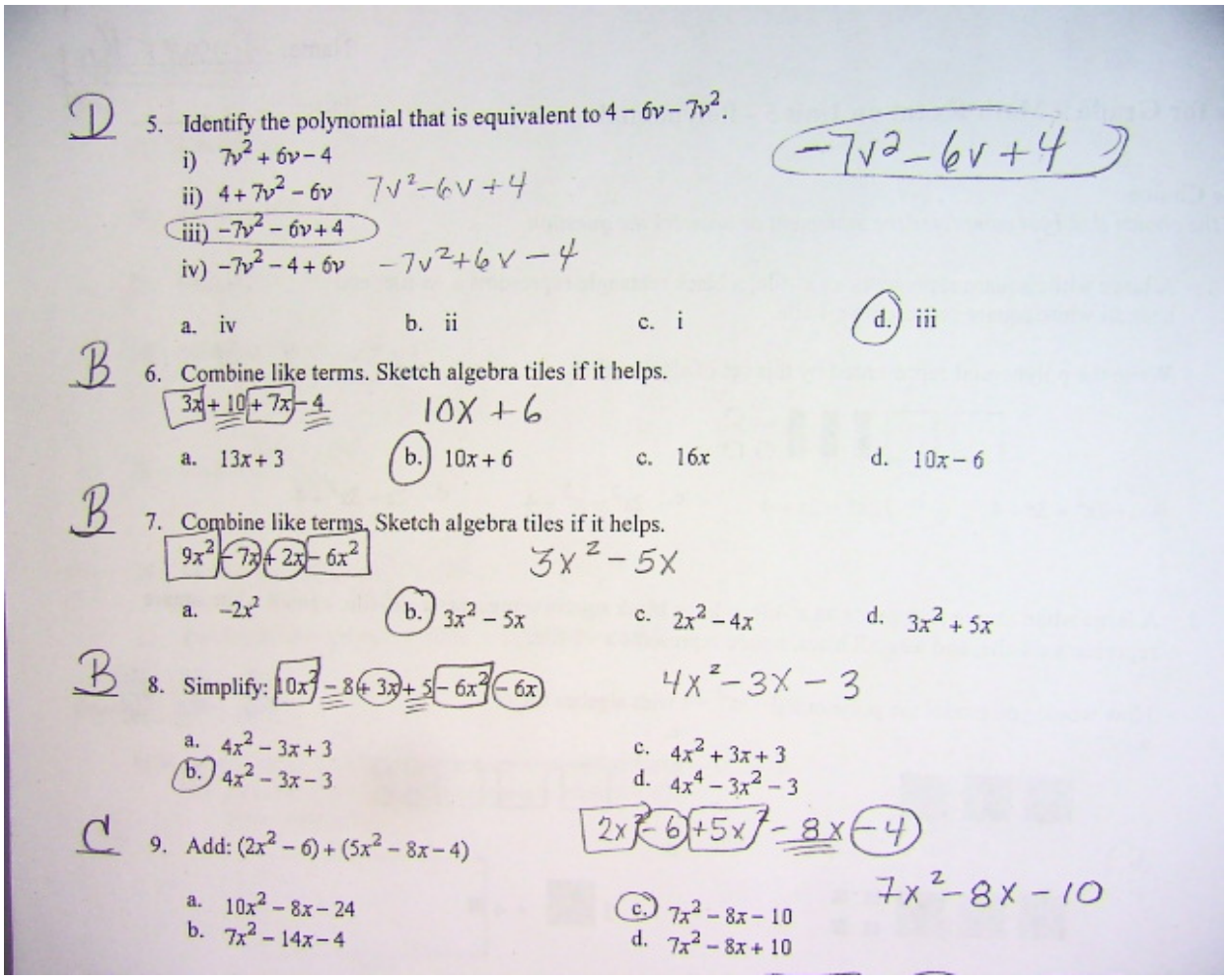
✓i) $2x^2-5+6x$ $2x^2+6x-5$

ii) $2x^2-6x+5$ $2x^2-6x+5$

iii) $-5+6x-2x^2$ $-2x^2+6x-5$

✓iv) $6x-5+2x^2$ $2x^2+6x-5$

(a.) i and iv b. iii and iv c. ii and iv d. i and ii



D 5. Identify the polynomial that is equivalent to $4 - 6v - 7v^2$.

i) $7v^2 + 6v - 4$

ii) $4 + 7v^2 - 6v$ $7v^2 - 6v + 4$

iii) $-7v^2 - 6v + 4$

iv) $-7v^2 - 4 + 6v$ $-7v^2 + 6v - 4$

$-7v^2 - 6v + 4$

a. iv b. ii c. i d. iii

B 6. Combine like terms. Sketch algebra tiles if it helps.

$3x + 10 + 7x - 4$ $10x + 6$

a. $13x + 3$ b. $10x + 6$ c. $16x$ d. $10x - 6$

B 7. Combine like terms. Sketch algebra tiles if it helps.

$9x^2 - 7x + 2x - 6x^2$ $3x^2 - 5x$

a. $-2x^2$ b. $3x^2 - 5x$ c. $2x^2 - 4x$ d. $3x^2 + 5x$

B 8. Simplify: $10x^2 - 8 + 3x + 5 - 6x^2 - 6x$ $4x^2 - 3x - 3$

a. $4x^2 - 3x + 3$

b. $4x^2 - 3x - 3$

c. $4x^2 + 3x + 3$

d. $4x^4 - 3x^2 - 3$

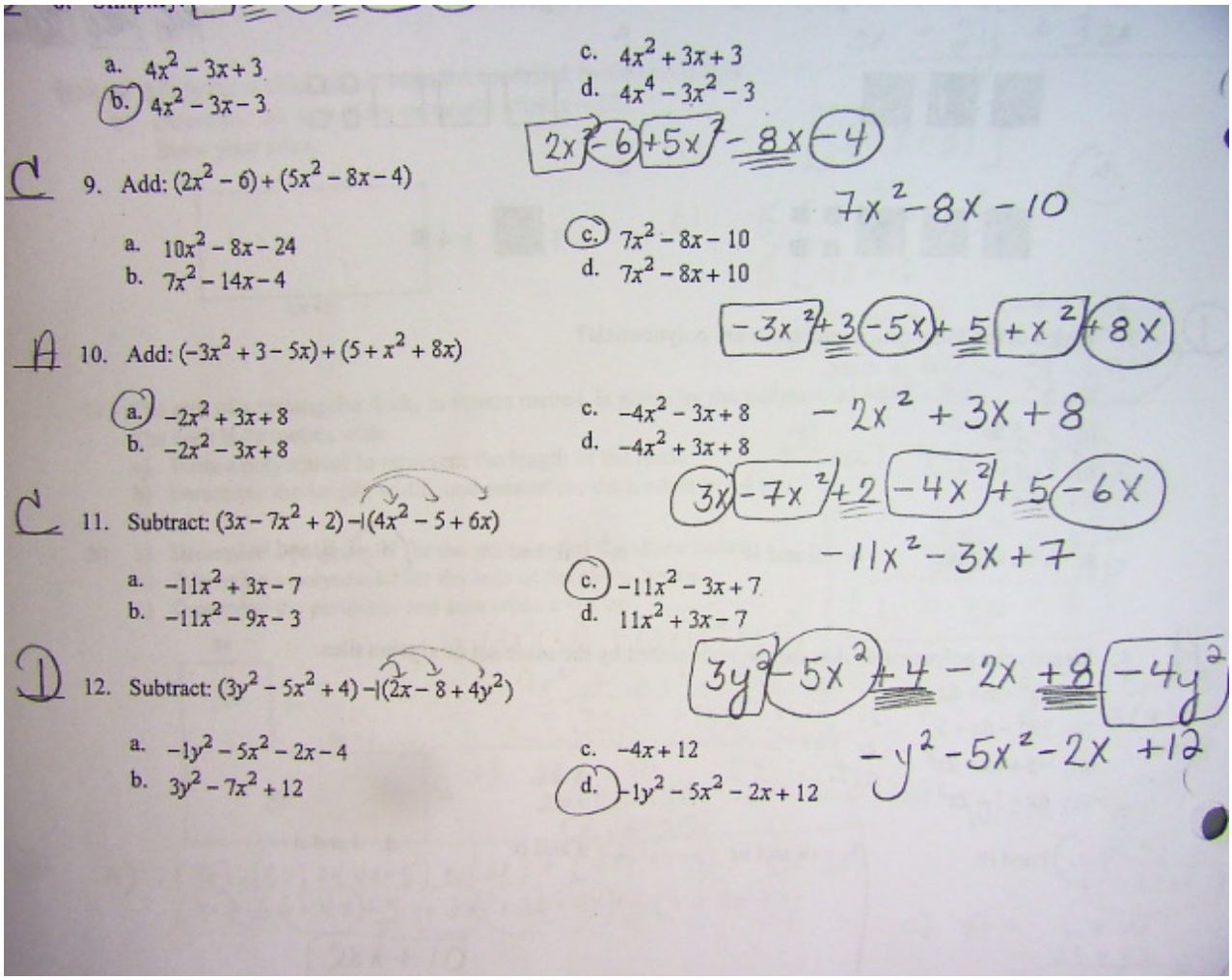
C 9. Add: $(2x^2 - 6) + (5x^2 - 8x - 4)$ $2x^2 - 6 + 5x^2 - 8x - 4$ $7x^2 - 8x - 10$

a. $10x^2 - 8x - 24$

b. $7x^2 - 14x - 4$

c. $7x^2 - 8x - 10$

d. $7x^2 - 8x + 10$



a. $4x^2 - 3x + 3$
b. $4x^2 - 3x - 3$
c. $4x^2 + 3x + 3$
d. $4x^4 - 3x^2 - 3$

C 9. Add: $(2x^2 - 6) + (5x^2 - 8x - 4)$

$2x^2 - 6 + 5x^2 - 8x - 4$

$7x^2 - 8x - 10$

a. $10x^2 - 8x - 24$
b. $7x^2 - 14x - 4$
c. $7x^2 - 8x - 10$
d. $7x^2 - 8x + 10$

A 10. Add: $(-3x^2 + 3 - 5x) + (5 + x^2 + 8x)$

$-3x^2 + 3 - 5x + 5 + x^2 + 8x$

a. $-2x^2 + 3x + 8$
b. $-2x^2 - 3x + 8$
c. $-4x^2 - 3x + 8$
d. $-4x^2 + 3x + 8$

$-2x^2 + 3x + 8$

C 11. Subtract: $(3x - 7x^2 + 2) - (4x^2 - 5 + 6x)$

$3x - 7x^2 + 2 - 4x^2 + 5 - 6x$

$-11x^2 - 3x + 7$

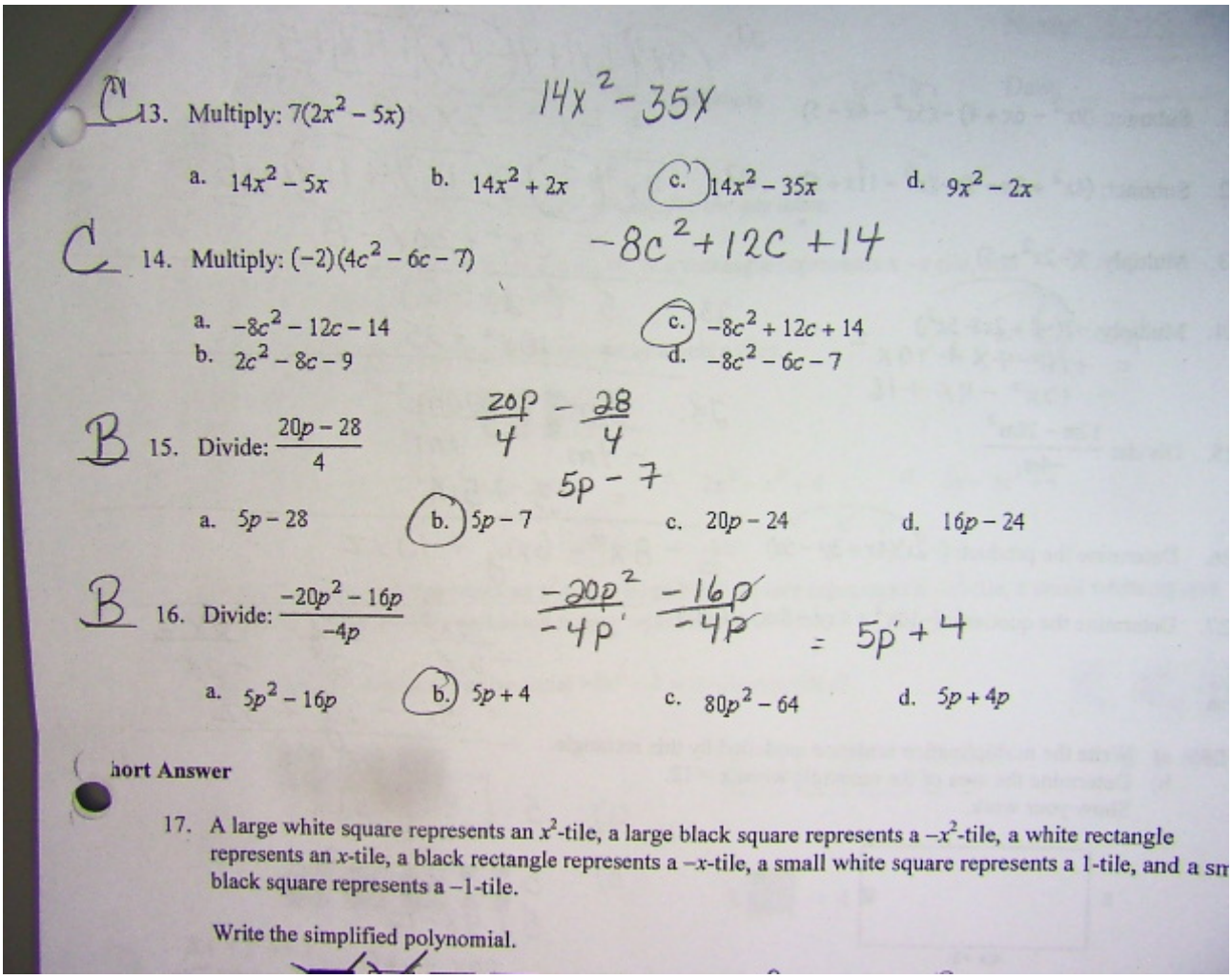
a. $-11x^2 + 3x - 7$
b. $-11x^2 - 9x - 3$
c. $-11x^2 - 3x + 7$
d. $11x^2 + 3x - 7$

D 12. Subtract: $(3y^2 - 5x^2 + 4) - (2x - 8 + 4y^2)$

$3y^2 - 5x^2 + 4 - 2x + 8 - 4y^2$

$-y^2 - 5x^2 - 2x + 12$

a. $-1y^2 - 5x^2 - 2x - 4$
b. $3y^2 - 7x^2 + 12$
c. $-4x + 12$
d. $-1y^2 - 5x^2 - 2x + 12$



C 13. Multiply: $7(2x^2 - 5x)$ $14x^2 - 35x$

a. $14x^2 - 5x$ b. $14x^2 + 2x$ c. $14x^2 - 35x$ d. $9x^2 - 2x$

C 14. Multiply: $(-2)(4c^2 - 6c - 7)$ $-8c^2 + 12c + 14$

a. $-8c^2 - 12c - 14$
b. $2c^2 - 8c - 9$
c. $-8c^2 + 12c + 14$
d. $-8c^2 - 6c - 7$

B 15. Divide: $\frac{20p - 28}{4}$ $\frac{20p}{4} - \frac{28}{4}$ $5p - 7$

a. $5p - 28$ b. $5p - 7$ c. $20p - 24$ d. $16p - 24$

B 16. Divide: $\frac{-20p^2 - 16p}{-4p}$ $\frac{-20p^2}{-4p} \quad \frac{-16p}{-4p} = 5p + 4$

a. $5p^2 - 16p$ b. $5p + 4$ c. $80p^2 - 64$ d. $5p + 4p$

hort Answer

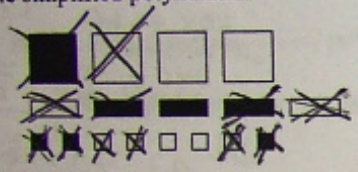
17. A large white square represents an x^2-tile, a large black square represents a $-x^2$-tile, a white rectangle represents an x-tile, a black rectangle represents a $-x$-tile, a small white square represents a 1-tile, and a sn black square represents a -1-tile.

Write the simplified polynomial.

Answer

17. 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.



$= 2x^2 - 1x + 2$

18. Combine like terms. Sketch algebra tiles if it helps.

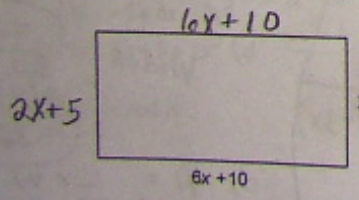
$3x^2 - 6x + 4x^2 + 3x - 6$ $= 7x^2 - 3x - 6$

19. Add: $(10x^2 - 7x + 6) + (-2x^2 + 2x - 9)$

$10x^2 - 7x + 6 - 2x^2 + 2x - 9$

$= 8x^2 - 5x - 3$

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



$(6x+10) + (6x+10) + (2x+5) + (2x+5)$

$6x + 10 + 6x + 10 + 2x + 5 + 2x + 5$

$16x + 30$

OR $2(6x+10) + 2(2x+5)$

$12x + 20 + 4x + 10$

$16x + 30$

21. Subtract: $(9x^2 - 6x + 4) - (5x^2 - 4x - 5)$

22. Subtract: $(4x^2 + 9x - 3) - (x^2 - 11x + 5)$

23. Multiply: $5(-2x^2 - 5)$

24. Multiply: $-2(-8 + 2x - 5x^2)$

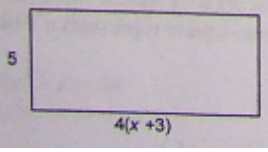
25. Divide: $\frac{12m - 20m^2}{-4m}$

26. Determine the product: $(-2x)(4x + 3y - 5z)$

27. Determine the quotient: $(-10x^2 + 4xy - 6xz) \div (-2x)$

Problem

28. a) Write the multiplication sentence modelled by this rectangle.
b) Determine the area of the rectangle when $x = 12$.
Show your work.



21. $9x^2 - 6x + 4 - 5x^2 + 4x + 5$
$= 4x^2 - 2x + 9$

22. $4x^2 + 9x - 3 - x^2 + 11x - 5$
$= 3x^2 + 20x - 8$

23. $5(-2x^2 - 5)$
$= -10x^2 - 25$

25. $\frac{12m}{-4m} - \frac{20m^2}{-4m}$
$= -3 + 5m$

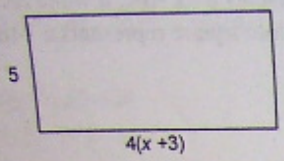
26. $-8x^2 - 6xy + 10xz$

27. $\frac{-10x^2}{-2x} + \frac{4xy}{-2x} - \frac{6xz}{-2x}$
$= 5x - 2y + 3z$

a) $5[4(x+3)]$

b) $5[4(x+3)]$
$5[4x + 12]$

28. a) Write the multiplication sentence modelled by this rectangle.
b) Determine the area of the rectangle when $x = 12$.
Show your work.



a) $5[4(x+3)]$

b) $5[4(x+3)]$
$5[4x+12]$
$20x + 60$
$20(12) + 60$
$240 + 60$
$= 300$
Let $x = 12$.

29. The area of a rectangular deck, in square metres, is given by the polynomial $40p^2 + 24p$.
The deck is $8p$ metres wide.
a) Write a polynomial to represent the length of the deck.
b) Determine the length, width, and area of the deck when $p = 4$ m.

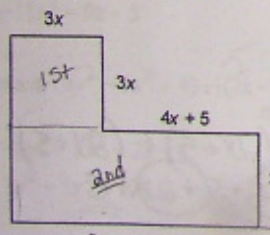
29. a) $\frac{40p^2 + 24p}{8p}$
$\frac{40p^2}{8p} + \frac{24p}{8p}$
$L = 5p + 3$

b) Length $5p + 3$
$5(4) + 3$
$20 + 3$
$= 23$ m

Width $8p$
$8(4)$
$= 32$ m

c) $A = L \times W$
$= 23 \times 32$
$= 736\ m^2$

30. a) Determine a polynomial for the perimeter of the shape below.
b) Determine a polynomial for the area of the shape below.
c) Determine the perimeter and area when $x = 6$ cm.



b) $(3x)(3x) + (3x)(7x+5)$
$9x^2 + 21x^2 + 15x$
$= 30x^2 + 15x$

c) $26x + 10$
$26(6) + 10$
$= 166$ cm

30. a) $(3x) + (3x) + (4x+5) + (3x) + (3x+4x+5) + (3x+3x)$
$3x + 3x + 4x + 5 + 3x + 3x + 4x + 5 + 3x + 3x$
$26x + 10$