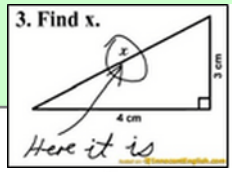
MPM 1D9 **Semester 2, 2016 - 2017**

Grade 9 Pre-AP Math

Unit 1 – Number Sense and Algebra – Minor Test

Mr. Nolfi

Victim: Mr. Solutions Get another dazzling display of mathematical might Mr. S.!!



KU	TIPS
36/36	8 /8

Multiple Choice **(5 KU)**

1. d ✓ Which expression ***CANNOT*** be simplified? **(1 KU)**

(a) ✓ $2x+9x$ (b) $a+\frac{1}{5}a$ (c) $5p^2-7p^2$ (d) $5n^2-7n$ ← unlike terms

2. d ✓ Which statement is ***FALSE***? **(1 KU)**

(a) $-3a$ and $4b^2$ are unlike terms. ✓ (b) $\frac{1}{2}$, 3 and –0.7 are like terms. ✓

(c) ✓ Like terms have equivalent variable parts. ✓ (d) x, x^2 and $2x^3$ are like terms. ✗

3. C ✓ Which statement is ***TRUE***? **(1 KU)**

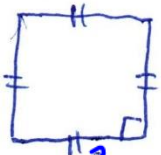
(a) $-3a(4b^2)$ cannot be simplified. ✗ (b) In the expression $-3a(4b^2)$, $-3a$ and $4b^2$ are unlike terms. ✗

(c) $-3a(4b^2)$ simplifies to $-12ab^2$. (d) $x+x^2+x^3$ simplifies to x^6. ✗

$-12ab^2$ ← only one term! ← factors NOT terms

4. b ✓ The side length of a square is $5x^3$. What is its ***PERIMETER***? **(1 KU)**

(a) ✓ $25x^6$ (b) $20x^3$ (c) $20x^6$ (d) $25x^3$



$P = 4(5x^3) = 20x^3$

5. a ✓ The side length of a square is $5x^3$. What is its ***AREA***? **(1 KU)**

(a) $25x^6$ (b) $20x^3$ (c) $20x^6$ (d) $25x^3$

$A = (5x^3)(5x^3) = 25x^6$

Modified True/False **(5 KU)**

Indicate whether each statement is ***true*** or ***false***. If false, ***change*** the ***underlined part*** to make the statement true.

6. T/F F ✓ $2^3(3^4) = \underline{6^{3+4} = 6^7}$ $8(81) = 648$ **Change:** 648 ✓

7. T/F F ✓ The expression "$-2x^4$" means "$\underline{(-2x)(-2x)(-2x)(-2x)}$." **Change:** $-2(x)(x)(x)(x)$ ✓

8. T/F F ✓ The expression "5 – 3x" means "triple a number reduced by 5." **Change:** 5 reduced by triple a # ✓

✓ = ½ mark

9. T/F F ✓ The expression "$3b+5b$" ***simplifies to*** "$\underline{8b^2}$." **Change:** $8b$ ✓

10. T/F F ✓ The expression "$3b(5b)$" ***simplifies to*** "$\underline{8b}$." **Change:** $15b^2$ ✓

$=3(5)(b)(b)$

$=15b^2$

KU	APP	TIPS	COM
-0	-0	-0	-0

BEDMAS
1 2 3 4

11. Evaluate. Use B E DM AS, *NOT* the distributive property! **(10 KU)**

(a) $-3^2-2(3^2-5^2)-7(3-5)^3$

$=-9-2(9-25)-7(-2)^3$ ✓

$=-9-2(-16)-7(-8)$ ✓

$=-9-(-32)-(-56)$

$=-9+32+56$ ✓

$=79$ ✓

(b) $-5a^2b^3-2a(a-3b)^2$, if $a=3$ and $b=-1$

$=-5(3)^2(-1)^3-2(3)[3-3(-1)]^2$ ✓

$=-5(9)(-1)-6[3-(-3)]^2$ ✓

$=45-6(6)^2$ ✓

$=45-6(36)$ ✓

$=45-216=-171$ ✓

12. Simplify each of the following expressions if possible. Show all steps! **(16 KU)**

(a) $-7a^2b+3ab-3a^2b+7ab$

$=-7a^2b-3a^2b+3ab+7ab$

$=-10a^2b+10ab$ ✓

(b) $(5a^2b+3ab)-(6a^2b+7ab)$

$=5a^2b+3ab+(-6a^2b-7ab)$ ✓

$=5a^2b+3ab-6a^2b-7ab$ ✓

$=-a^2b-4ab$ ✓

(c) $5a^2b(3ab)$

$=5(3)(a^2)(a^1)(b^1)(b^1)$

$=15a^3b^2$ ✓ ✓ ✓

Multiplication can be performed in any order!

i.e. $ab=ba$ ← (commutative property)

$(ab)c=a(bc)$ (associative property)

(d) $(-7a^2b)(+3ab)(-3a^2b)(+7ab)$

$=-7(3)(-3)(7)(a^2a^1a^2a^1)(b^1)(b^1)(b^1)(b^1)$

$=441a^6b^4$ ✓ ✓ ✓

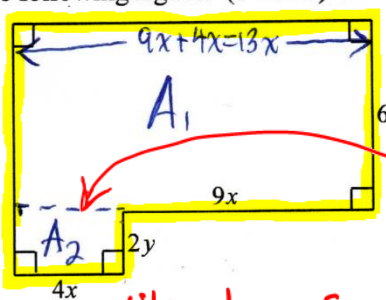
using the commutative and associative properties of multiplication

(e) $\dfrac{-125x^7y^3}{25x^5y}$

$=\dfrac{-125}{25}\left(\dfrac{x^7}{x^5}\right)\left(\dfrac{y^3}{y^1}\right)$

$=-5x^2y^2$ ✓ ✓ ✓

13. Write ***fully simplified*** expressions for both the ***perimeter*** and ***area*** of the following figure. **(8 TIPS)**



(a) Perimeter

$P=13x+6y+9x+2y+4x+2x+6y$ ✓ ✓

$=13x+9x+4x+6y+2y+2y+6y$

$=26x+16y$ units ✓ ✓

include only the boundary when calculating perimeter

Do NOT include in perimeter!

(b) Area

$A=A_1+A_2$ ✓

$=13x(6y)+4x(2y)$

$=78xy+8xy$ ✓

$=86xy$ units^2 ✓ ✓

like terms

KU	APP	TIPS	COM
-0	-0	-0	-0