WS Umit 1 Patterns & relations WORKSHEET

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Grade 7

Name: _____ Unit 1 – Patterns and Relations WORKSHEET

Part A – Multiple Choice

A 1. Which expression matches the following: a number decreases by 5
    (a) v – 5   (b) h + 5   (c) 5+ d   (d) 5 - f

 # in front of letter

C 2. What is the numerical coefficient for the expression: 3x - 9
    (a) 1   (b) x   (c) 3   (d) -9

3. Which equation matches the statement:
    triple the number of people increased by 4 is 25.
D   (a) 3p - 4 = 25   (b) p + 4 = 25   (c) p – 4 = 25   (d) 3p + 4 = 25

4. Write the expression for the following input/output table

Input (n)	1	2	3	4	5
Output	1	9	17	25	33

B   8n -7

    (a) n   (b) 8n - 7   (c) 8n + 7   (d) 8n

A 5. When simplified, k + k + 2k + k equals:
    (a) 5k   (b) k4   (c) k + 5   (d) k^4

6. The algebra tiles represent which of the following equations:
    (a) 3x – 4 = 7
    (b) -3x +4 = -7
A   (c) 3x, -4, 7
    (d) 3x +4 = 7

7. When evaluated for y = 5,   8y + 6 equals:
D   (a) 91   (b) 19   (c) 85   (d) 46

8. Which of the following situations is suitable for the expression 6b + 10
    (a) Kim earns $6 dollars per hour on weekdays and $10 per hour on weekends
    (b) If the number of students in the class are increased by 10, there will be 6 students
C   (c) The vacuum cleaner rental costs $10 plus $6 for each hour
    (d) The cost of the book is $10 less than 6 times lasts years cost

9. The expression for 7 less than a number is:
B   (a) 7 – n   (b) n – 7   (c) 7n   (d) n + 7

10. In order to do well in class I must do which if the following:
B   (a) Talk to friends   (b) Pay attention   (c) Eat   (d) Not copy Notes

Part B – Must show work in order to obtain full value.

let n = a number

1. Write an algebraic expression for each statement.

(a) a product of 6 and a number $6n$

(b) Six more than 9 times a number $6 + 9n$ $9n + 6$

(c) Triple a number and increase by eleven $3n + 11$

(d) Five is subtracted **from** three times a number
$3n - 5$

2. There are <u>n the number</u> of pencils in the pencil case.
(a) Write a relation for the number of pencils you have, if you have 5 pencils cases.

$Pencils = 5n$

(b) How many pencils do you have if there are 40 pencils in each pencil case? (Show work)

$Pencils = 5n$
$= 5(40)$
$= 200$

If there is 40 pencils in each case, than we have a total of 200 pencils

3. Write an **equation** for each sentence.
(a) Ten more than a number is 22

$10 + n = 22$

(b) A number reduced by eight is 13.

$n - 8 = 13$

4. **Simplify** and evaluate the following (MUST SIMPLIFY FIRST....collect like terms)
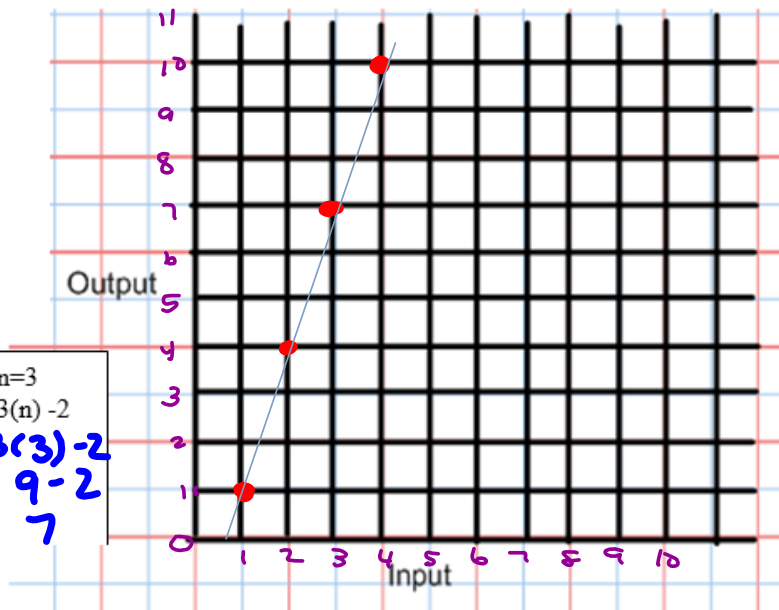(a) $10r + 4y - 2r + 20 + 2y + r$ where $r = 1$ and $y = 2$

$10r - 2r + r + 4y + 2y + 20$
$9r + 6y + 20$
$9(1) + 6(2) + 20$
$9 + 12 + 20$
$\boxed{41}$

5. (a) Complete an input/output table for the relation 3n- 2 related to n

(b) Graph the relation,

(a)

Input n	Output 3n - 2
1	1
2	4
3	7
4	10
5	13

Show work

n=1 3(n) -2	n=2 3(n) -2	n=3 3(n) -2
3(1)-2 3-2 1	3(2)-2 6-2 4	3(3)-2 9-2 7

6. Evaluate each expression for $x = 6$ (SHOW ALL WORK)

(a) 3x

$3(6)$
$= 18$

(b) 3x + 5

$3(6)+5$
$18 +5$
$\boxed{23}$

(c) 30 − 2x

$30 -2(6)$
$30 - 12$
$\boxed{18}$

7. Use algebra tiles to model the following **equations**(not the solution): (DON'T SOLVE) Shaded +
Unshaded -
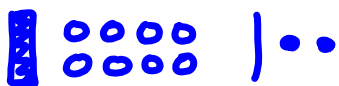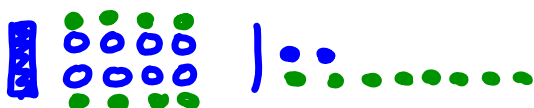
(a) x + 7 = -4
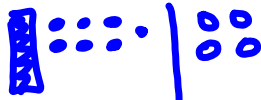
(b) 2x - 3 = 5

8. Model   x - 8 = 2   with algebra tiles and THEN solve for x.
(Show all work and state the final answer x = ____)

$$x - 8 = 2$$

$$x - 8 + 8 = 2 + 8$$

$$x = 10$$

Attachments

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