

Unit 8.2: Algebra

[35 points in total]

Section 1: Simplify the following expressions.

[4 points]

1) $3y + 4x - 3y - 2x =$

2) $6Y - 2y + 3y - 7Y =$

3) $2x^2 + 3x - x^2 + 3x^3 =$

4) $ax + bx + 3ab + 2ax =$

Section 2: Expand the brackets in the following expressions and simplify.

[6 points]

HINT: $\frac{1}{4} \times 8 = \frac{1}{2 \times 2} \times (2 \times 2 \times 2) = 1 \times 2 = 2$

5) $2(2x + 4) =$

6) $a(2a + b - 2) =$

7) $2x(x + 5) - 3y(2y + 2) =$

8) $2s^2 + s(2 + s) =$

9) $\frac{x}{2}(2x + 2) =$

10) $\frac{1}{2x}(2x^2 + 4x) =$

Section 3: Intervals

[8 points]

- i) Identify whether the following intervals are open or closed intervals.
- ii) Count and write down the number of possible values in each interval

11) $1 < x < 5$

Type of interval:

Number of possible values for x :

12) $5 > y > -2$

Type of interval:

Number of possible values for y :

13) $-8 \leq m \leq -2$

Type of interval:

Number of possible values for m :

14) $3 \geq t \geq -3$

Type of interval:

Number of possible values for t :

Section 4: Factorize the following expressions completely.

[4 points]

e.g. $6x + 18 = 6(x + 3)$

15) $2x^2 + 11x =$

16) $3x + 9y + 12 =$

17) $x^3 - 3x^2 + 11x =$

18) $6x^2 + 30x =$

Section 5: Solve the following problems. Simplify all your answers.

- 19) The area of the following rectangle is $4x + 10$. The width of the rectangle is 2. The length is unknown. [3 points]



Write down an expression for the length of the rectangle.

$length =$

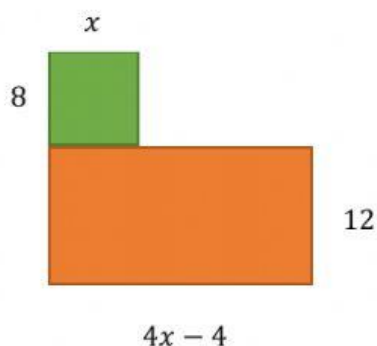
The area of the rectangle is 24.

Find the length, and the value of x .

$length =$

$x =$

- 20) Refer to the shape and answer the following questions. [6 points]



Write an expression for the perimeter of the green rectangle

$P_{green} =$

Write an expression for the perimeter of the orange rectangle

$P_{orange} =$

Write an expression for the perimeter of the whole shape (Be careful with this question!
It's asking for the perimeter of the whole shape, NOT $P_{orange} + P_{green}$).

$P =$

The area of the green rectangle is 56. Find x .

$x =$

Use the previous value of x to find the perimeter of the whole shape. (Be careful with
this question! It's asking for the perimeter of the whole shape, NOT $P_{orange} + P_{green}$).

$P =$

21) I'm trying to buy shirts at a store

[4 points]

If I bought 3 shirts I will have 24,200 kyats left in my wallet. Using this information,
write an expression for the amount of money I had originally.

Money I had originally =

If I bought 5 shirts I will have 200 kyats left. Using this information, write an expression
for the amount of money I had originally.

Money I had originally =

Using the two equations above, find out how much each shirt cost, and how much
money I had originally.

Cost of 1 shirt =

Money I had originally =