SHARP

Worksheet 22: Algebraic Equations (Term 4)
Grade 8

Question 1:
Word sums involving area and perimeter.

a) The area of a rectangle is $60\ cm^2$. If the length of one of the sides is $12cm$, determine the length of the other side.
b) The area of a square is $2070{,}25mm^2$. Calculate the length of each side.
c) If the base of a triangle is $250mm$ and the area is $125cm^2$, determine the height of the triangle.
d) If the perimeter of a rectangle is $56m$ and the length is three times longer than the breadth, determine the length of the sides.
e) Thando ran around a field that is a square shape. She ran around the perimeter of the square 6 times. The total distance she ran was $672km$. Determine the length of one of the sides of the field.

Question 2:

BMI (Body Mass Index) is a method of measuring the amount of body fat a person has by looking at the ratio of your height to your weight. The formula is:

$$BMI = \frac{Weight\ in\ kg}{(Height\ in\ meters)^2}$$

If a person has a BMI of $25{,}38$ and their height is $1{,}83m$, determine their weight in $kg's$. Round off your answer to the nearest unit.

Question 3:

A right-angled isosceles triangle has its longest side measuring $9{,}9cm$, determine the length of the two shorter sides.

Question 4:
The equation for a straight line is given: $y = -2x + 3$
Use the equation to complete the coordinates in the table below:

x	-3	(b)	4	7	(e)	12
y	(a)	5	(c)	(d)	-17	(f)

Question 5:
Complete the table below for x and y values for the equation: $y = x^2 - 4$

x	-4	-2	(c)	(d)	10
y	(a)	(b)	5	21	(e)

Question 6:
Evaluate the expression if:
$a = -2; b = 3 \; and \; c = 5$

a) $a^2 - b$
b) $-2(a)^2 + b - 2c$
c) $a^3 \times 2b \times c$
d) $a.a.a.(b + b).c$
e) $-c^2 - a^2 + b$

Question 7:
Solve the following equations:

a) $3x - 5 = 16$
b) $2x - 4 = 3x + 5$
c) $5x - 3(2x + 1) = 6$
d) $\frac{x}{3} + 4 = 10$
e) $2(x + 3) = 18$
f) $4x - 5 - x = 10$
g) $7(x - 2) = 3(2x + 1)$
h) $\frac{2x+1}{5} = 3$

Question 8:
Develop algebraic equations to solve the following word problems:

a) A cell phone company charges a monthly subscription of R50 plus R2 per minute for making calls. If Thandi's bill was R130,00 then how many minutes did she spend on the phone in that month?

b) Jesse buys 3 books for R180,00. The price of each book is R20,00 more than the other. Determine the cost of each book.