



BINA BANGSA SCHOOL KJS

TOPICAL TEST CHAPTER 2 QUADRATIC EQUATIONS AND INEQUALITIES SEC 3 ACCELERATED TAYLOR

NAME: _____

DATE: _____

Question 1

Without using a calculator, find the values of the constants a and b such that

$$\frac{a + b\sqrt{5}}{3 + \sqrt{5}} = \frac{3 + \sqrt{5}}{2 - \sqrt{5}}$$

[4]

Question 2

Solve the equations:

(a) $\sqrt{7x + 1} = 4$ [2]

(b) $x\sqrt{243} + \sqrt{27} = x\sqrt{3}$ [3]

Question 3

Integers a and b are such that $(a + 3\sqrt{5})^2 + a - b\sqrt{5} = 51$.

Find all the possible values of a and the corresponding values of b . [5]

Question 4

Using appropriate substitution, solve the equation $x - 13\sqrt{x} + 38 = 2$. [5]

Question 5

Simplify the following expressions.

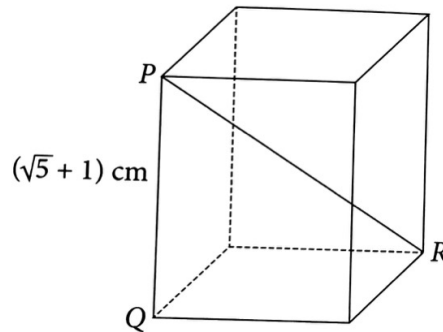
(a) $\sqrt{75} + \sqrt{32} - \sqrt{27} - 2\sqrt{12} + 3\sqrt{8} - \sqrt{50}$ [2]

(b) $(10 - \sqrt{5})(9 + \sqrt{5})$ [2]

(c) $(5 - \sqrt{3})^2 + (4 - \sqrt{3})^2$ [3]

Question 6

The diagram below shows a cuboid with a square base. The height PQ of the cuboid is $(\sqrt{5} + 1)$ cm.



Given that the length of the diagonal PR is $\frac{19\sqrt{5}}{2\sqrt{5}+1}$ cm,

(a) find an expression for QR^2 in the form $c + d\sqrt{5}$, where c and d are integers [4]

(b) express the volume of the cuboid in the form of $\frac{11}{2}(7\sqrt{5} + k)$, where k is an integer. [5]