FUTURE FAME ACADEMY 4LYF

SUCCESS IN MATHEMATICS

QUESTIONS AND ANSWERS

TYPICAL EXAM QUESTIONS

FOR GRADE

8 & 9

$$\div \times \pm \neq \leq \geq \pi$$

WE ALL HAVE ABILITY THE DIFFERENCE IS HOW WE USE IT

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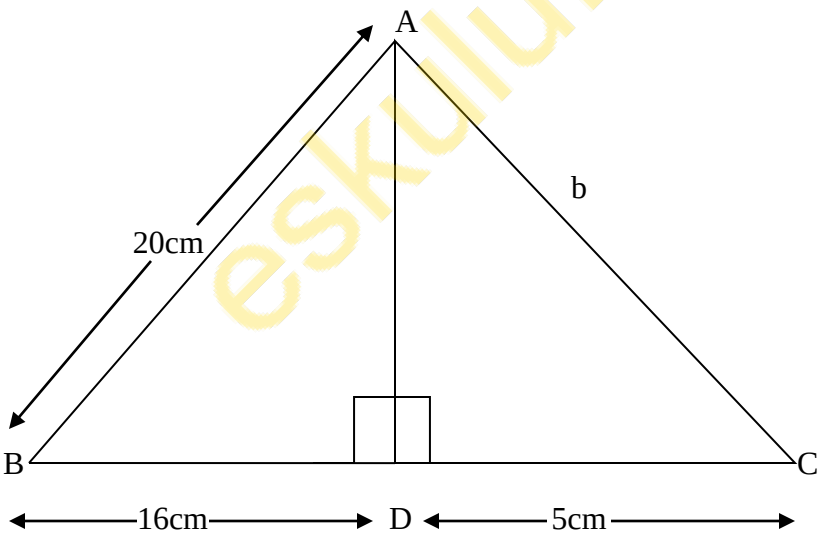
TYPICALLY EXAM QUESTIONS

1. Factorise $6x^2 - 6$ completely
2. If $2 + 7(2 - x) = 3x - 24$, calculate the value of x
3. Simplify $1\frac{3}{4} - \frac{3}{6} + 2\frac{1}{2}$
4. Calculate the simple interest on K800 000 at $2\frac{1}{2}\%$ per annum for 12 months
5. Express 45.345667 correct to:
   i) 1 decimal place
   ii) 4 significant figures
   iii) 3 decimal places
6. Given that $128 = 2^n \times 2^4$. Find the value of n
7. Simplify $x(2x - 1) + 2(x - 3)$
8. Find the length of AC



9. Subtract $-12a + b$ from $25a - b$
10. Mr. Mahale hires a boy to make beds in his backyard garden, they agree on paying him K50 for making a single bed of onions and a K20 for making a single bed of cabbage. How much in total will he pay the boy if the boy makes 10 beds of onions and 5 beds of cabbage?
11. A rectangle polygon has 5 sides. What is the size of each interior angles?

12. Keegan, a pupil at future fame academy recorded that the ratio of boys to girls in school is 5:3. The total number of boys is 480, what is the total number of pupils in the school
13. Express $\frac{4x-2}{3} - \frac{x-2}{2}$ as a single fraction
14. Solve the simultaneous equation

    $x - y = 3$

    $3x + y = 1$
15. What is $310_{five} \div 20_{five}$ in base ten
16. Given that the point (p,4) lies on the line $y = 2x + 3$. Find the value of p
17. Express 25% as a fraction
18. Given that $x = 2, b = 4, a = 5, z = 3$. Find the values of the following

    i). $2a + 3b$

    ii). $\frac{4a+b}{x+ab}$
19. Factorize the following

    i). $18xy - 24x$

    ii). $12z + 10$
20. Simplify the following

    i). $2(e + 5) + 3(e + 10)$

    ii). $5(2d + 3) + 15d$
21. Find the product of the following

    i). -2 x 2

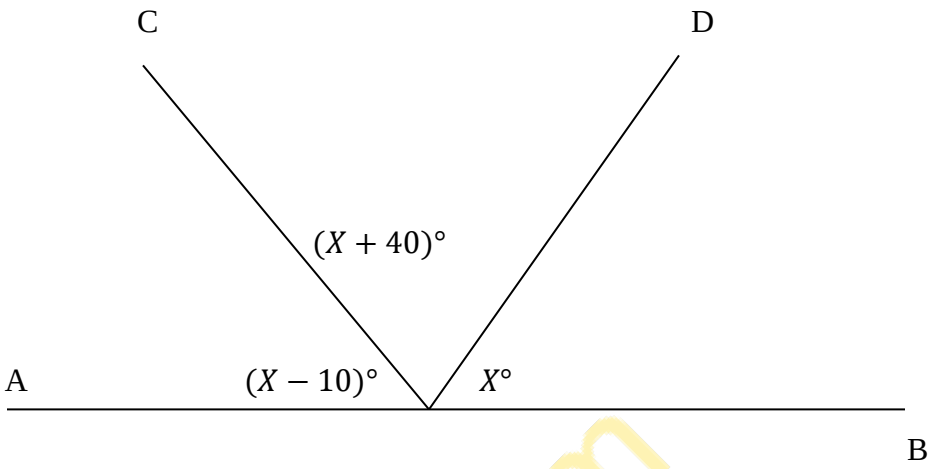
    ii). -7 x (-2)
22. Round off the following to three decimal places (3dp)

    i). 2.5652

    ii). 0.00501
23. Mr. Staywell bought a cylindrical tank to store drinking water. The tank has a height of 70cm and a radius of 20cm. calculate its volume. Taking ($\pi = \frac{22}{7}$)
24. The sum of interior angles of a regular polygon is 1080°. Calculate the size of each interior angle
25. Given $x = -2, and\ y = 1$, find the value of $4x^2 - 3xy$
26. Simplify $-3x + 2x + x - y$

27. Write 0.0078765 in standard form correct to 3 significant figures
28. Mr. Sikwinza invested K350 000 at 35% per annum. Calculate his simple interest after 120 months
29. Simplify $\frac{12}{4x} \div \frac{3}{6x^2}$
30. Given that E = $\{1, 2, 3, 4, 5, 6, 7, 8, 9, \}, A = \{1, 2, 4, 5\}, B = \{2, 4, 6, 7\}$ and C = $\{2, 3, 5, 7, 8\}$
    i) Illustrate this information in a Venn diagram
    ii) List the elements of the set $(A \cup B)' \cap C$
31. Mrs. Kibila recorded that a pupil scored 17, 43, 15, 22 and 18 in science weekly tests. Find the mean of the scores
32. Solve the equation $2x + 13 = 3$
33. Auntie prudence had K500.00, and bought the following items;
    2kg soya chunks at K30.00
    3 packets of onions at K10.00 each
    2 bags of charcoal at K50.00 per bag
    5kg beans at K10.00 per kg
    i) How much did she spend altogether?
    ii) How much was her change?
34. Express $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}\begin{pmatrix} -2 \\ 5 \end{pmatrix}$ as a single matrix
35. Given that $2 = \frac{m+n}{3+mn}$, make m the subject of the formula
36. Factorise completely $5ab^2 - 10ab$
37. A bag contains 6 red marble and 3 blue marbles. A marble is picked at random from the bag, find the probability that it is blue
38. Simplify $3x + 7 - 2(x - 3)$
39. Mr. Inambao deposited K6 000.00 in a bank at a rate of 30% simple interest per annum for 9 years. Calculate his interest.
40. If $f(x) = 7 - 3x$, find f(-3)
41. Write 0.03569 in standard form correct to 3 significant figures
42. Given that $x = \frac{w+3}{2-w}$, make w the subject of the formula

43. Solve for x



44. Mr. Mukonda recorded the pupils marks scored in a class of 30 children as shown below

Marks	0	1	2	3	4	5	6	7	8	9	10
Number of pupils	0	1	2	2	4	3	2	6	7	2	1

i) Find the mode
ii) What is the median mark
iii) What is the mean of the marks obtained
iv) find the percentage of the class of those who obtained more than half marks

45. Solve the equation $\frac{x}{4} - \frac{2x-3}{6} = 3$
46. Find the value of b if $3^2 \times 3^b = 81$
47. Given that $\pi = \frac{22}{7}$, and $V = \pi r^2 h$. Find the volume of a cylinder whose radius is 3.5cm and height is 15cm
48. Mr. Lubinda covered a distance of 410km on 40 liters. How much fuel will he need to cover a distance of 32km
49. What is the supplementary of 110°
50. Make t the subject of the formula, $s - a = \frac{\sqrt{ab}}{t} + a^2$
51. Solve for the unknown $\begin{pmatrix} p & +q \\ p & +2q \end{pmatrix} = \begin{pmatrix} 8 \\ 6 \end{pmatrix}$
52. Given that A = $\begin{pmatrix} 1 & 2 \\ 3 & 1 \end{pmatrix}$ and B = $\begin{pmatrix} 5 & 0 \\ 0 & 6 \end{pmatrix}$, find AB
53. A ladder of length of 25m rests with one end against a vertical wall and the other end on the ground. If the foot of the ladder is 15m from the wall, at what height above the ground is the top of the ladder

54. Solve the simultaneous equations

$3x - 2y = 12$

$x + 3y = -7$

55. Simplify $\frac{8a^3b^3c^2}{2abc}$

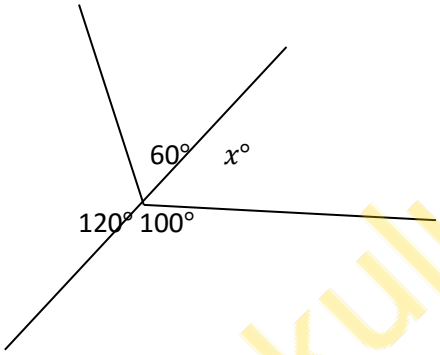
56. Given that $d = \frac{t(n-1)}{n}$ make n the subject of the formula

57. Solve the inequation $5x - 7 \geq 3x - 12$

58. Express $\frac{x-2}{5} - \frac{x+5}{6}$ as a single fraction

59. Solve for $x, 3(2x + 1) = 17 - 2(x - 1)$

60. Determine the size of $x°$



61. Simplify $\frac{3ab^2c \times d^2}{d^2 \times 3ac \times b^2}$

62. Solve the following equations

i) $3q + 2(q - 5) = 15$

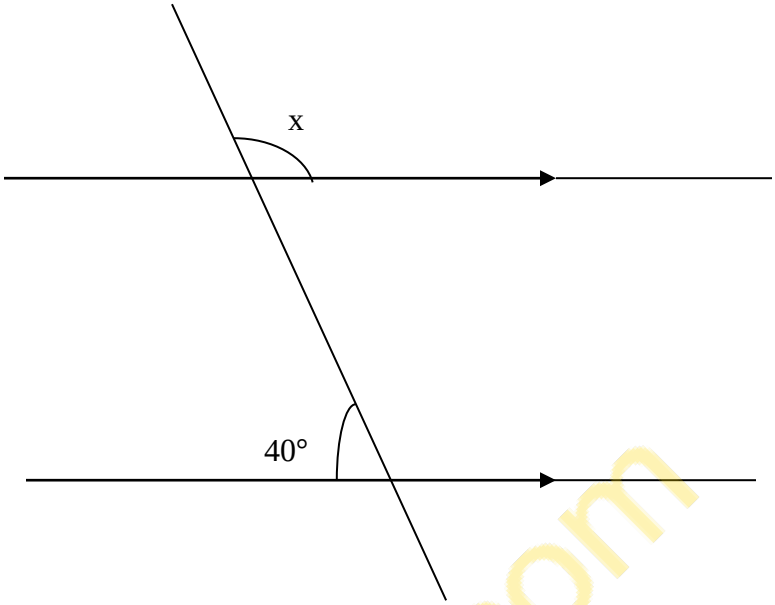
ii) $\frac{x}{3} + \frac{x}{4} = 5$

63. Mr. Musiyalela bought a car for K14 000. He sold it a year later for K11 200. What percentage of her money did she lose

64. The ratio of the length and breadth of a room is 3:2. Find the length if the breadth is 8.6meters

65. Solve $x - 1\frac{1}{2} = 3$

66. Find the size of angle x



67. Find the value of $0.0396 \div 2.51$ correct to 3 decimal places

68. What is the area of a field of measurements 4.15m by 2.14m?

69. Factorize completely $4xy + 6y$

70. Convert 0.125 to bicimal

71. Given that **A** = $\begin{pmatrix} 2 & 4 \\ 3 & 5 \end{pmatrix}$, **B** = $\begin{pmatrix} 0 & 1 \\ 5 & 2 \end{pmatrix}$, **C** = $\begin{pmatrix} 1 \\ 3 \end{pmatrix}$, find:

    i) **AB**

    ii) **BC**

    iii) **B – A**

72. Solve the simultaneous equation

    $2x + y = 6$

    $3x - y = -1$

73. If $f(x) = 10x - 15, f(-\frac{1}{2})$

74. Find the value of the unknown a, b, c, and d given that

    $3\begin{pmatrix} a & b \\ c & d \end{pmatrix} + \begin{pmatrix} -2 & 1 \\ 3 & 5 \end{pmatrix} = \begin{pmatrix} 12 & 16 \\ 18 & 10 \end{pmatrix}$

75. A coin was tossed 50 times. The number of times when a tail and a head were obtained was 32 and 18 respectively. Find the probability of getting:

i) Head (H)

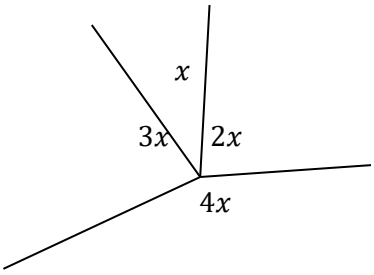
ii) Tail (T)

76. Taonga is paid K2.50 per hour for babysitting while the parents are away for work from Monday to Friday. If Taonga is given 1 hour lunch break at 13:00hrs and that she starts work at 06:00hrs and knocks off at 17:00hrs calculate Taonga's wage received in two weeks

77. Given that A$= \frac{2\pi xh+2\pi r^2}{h^2-yx}$ make x the subject of the formula

78. Express as a single fraction $\frac{3x}{x+y} - \frac{3y}{x+y}$

79. Solve for x



80. What is 75% of 2560

81. Jane is x years old. Her sister is 8 years older and the brother is 12 years younger than Jane. If their total age is 50, how old are they

82. Mr. Inambao took a loan of K3 000 to help pay for his car service. He arranges to pay back the money over two years at a rate of 9% per annum

    i) Calculate the simple interest that Mr. Inambao has to pay

    ii) Calculate the total amount he has to pay

    iii) If the total money that Mr. Inambao owes is to be paid back in monthly installments over two years, how much will he pay each month?

83. Calculate the volume of a cylinder with a radius of 4cm and a height of 9cm

84. What is the density of a metal block that has a mass of 220g and a volume of 15cm^3?

85. Solve the equation, $5(4x + 1) = 7(2x - 1)$

86. Simplify $7x^4yz^2 \div 21x^2z$

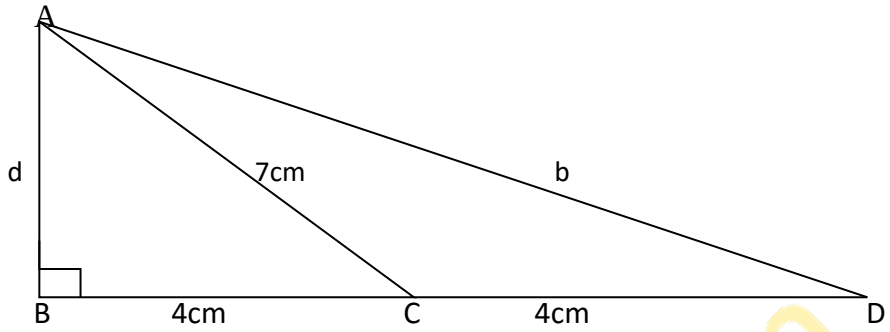
87. Evaluate $\frac{2^5 \times 4^2}{2^4}$

88. In a triangle ABC, AB = 7cm, BC = 6cm. the height of A meets BC at N such that BN = 5cm. find the length of the side AC

89. Given that $\frac{x+2}{y} = \frac{y}{x-3}$ make y the subject of the formula

90. Solve the inequality $\frac{3}{4}x + 12 > 6$

91. Find the lengths of the unknown sides

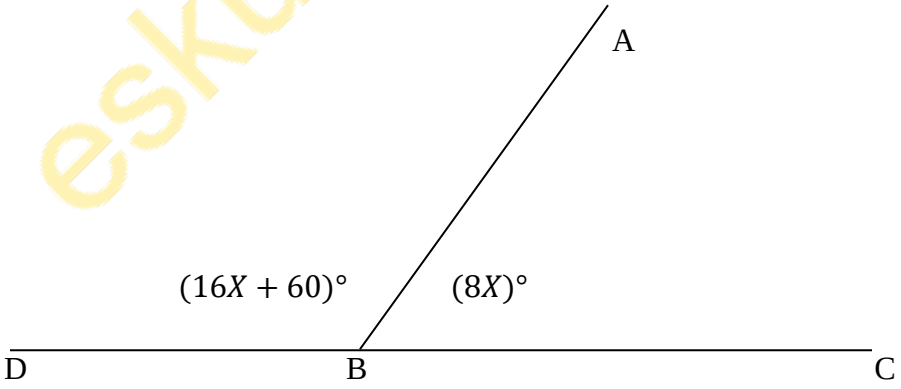


92. Express as a single fraction $\frac{3+9x}{5} - \frac{4x+1}{3}$

93. Mibenje is preparing to go to the United States. He has K19 600 to convert to United States dollars. How much will he get if the exchange rate is $\$1 = K9.80$

94. An arc PO of a circle of radius 5cm subtends an angle of 30° at the center O. find the area of sector POQ

95. Find <ABC



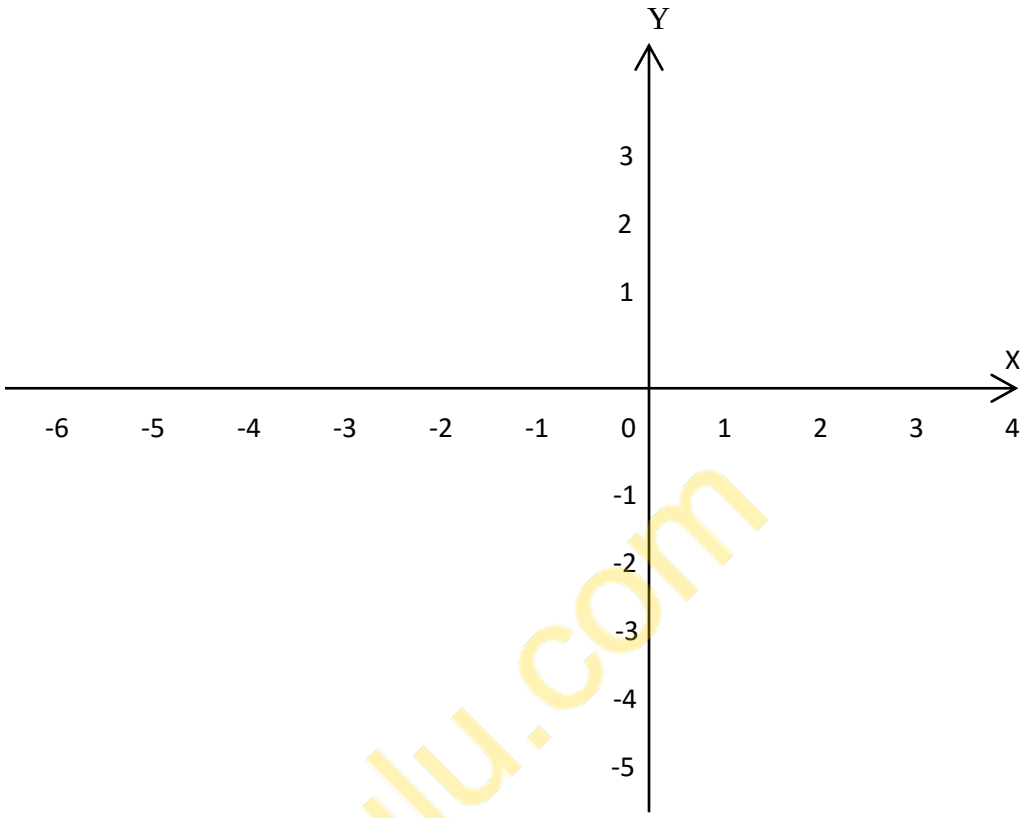
96. Write 833.000 in scientific notation

97. Solve for $x, \frac{2}{5} + \frac{x}{5} = \frac{7}{5}$

98. Mr. Hantobolo Hanfuti bought a vehicle costing K69 900 with VAT at 15% inclusive. Calculate the cost of the vehicle before the VAT was added

99. On the XOY plane below
    i) Plot the points A(-5,-5), B(-5,1), C(-2,3), D(1,1) and E(1,-5)
    ii) Form a polygon by joining the points ABCDE

iii) Draw the line y = -2



100. Using a ruler and a a pair of compasses

i) Construct a triangle ABC where AB = 8.5cm, angle CAB = 45° and AC= 6.5cm

ii) Construct a perpendicular from C to AB meeting AB at T and measure CT

iii) Find the area of the triangle ATC

THE END...

✈✈✈REVISE TO BE WISE OTHERWISE NO RISE✈✈✈

ANSWERS

1. $6(x-1)(x+1)$

2. $x = 4$

3. $\frac{15}{4}$

4. K20,000

5. i). 45.3 – 1dp, ii). 45.35 – 4sig. fig., iii). 45.346 – 3dp

6. $n = 3$

7. $2x^2 - x - 6$

8. i). AD = 12cm, AC = 13cm

9. $37a - 2b$

10. K600

11. 108°

12. 288 girls+480 boys = 768 pupils

13. $\frac{5x+2}{6}$

14. $x = 1, y = -2$

15. 8

16. $p = 0.5$

17. $\frac{1}{4}$

18. i). 22, ii). $\frac{12}{11}$

19. i). $6x(3y-4)$, ii). $2(6z-5)$

20. i). $5e - 40$, ii).$25d + 15$

21. i). -4, ii).14

22. i). 2.565 ii). 0.005

23. 88, 000cm^3

24. 1355°

25. 22

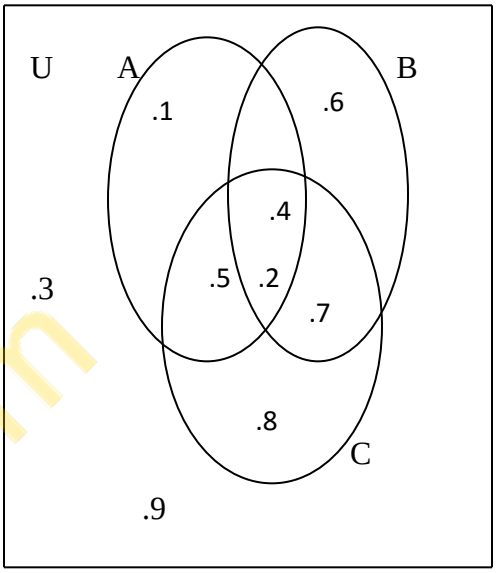
26. $-y$

27. 7.88×10^{-3}

28. K1,225, 000

29. 6x

30. i).



ii). $(A \cup B)' \cap C = \{8\}$

31. 23

32. $x = -5$

33. i). K210.00, ii). K280.00

34. $\begin{pmatrix} -2 \\ 5 \end{pmatrix}$

35. $m = \frac{n-6}{2n-1}$

36. $5ab(b-2)$

37. $\frac{1}{3}$

38. $x + 13$

39. K16,200

40. 16

41. 0.0357 – 3sig. fig.

42. $w = \frac{2x-3}{1+x}$

43. $x = 50°$

44. i). 2, ii).5, iii). $\frac{1}{5}$, iv). 60%

45. $x = -30$

46. $b = 2$

47. 577.5cm^3

48. 3.12 liters

49. 70°

50. $t = \frac{\sqrt{ab+a}}{s-a}$

51. $p = 10, q = -2$

52. $AB = \begin{pmatrix} 5 & 12 \\ 15 & 6 \end{pmatrix}$

53. 20m

54. $x = 2, y = -3$

55. 4a^2 b^{2}c

56. $n = \frac{t}{t-d}$

57. $x \geq \frac{5}{2}$

58. $\frac{x-37}{30}$

59. $x = 2$

60. $x = 80°$

61. 1

62. i). $x = \frac{60}{7}, q = 5$ ii). $\begin{pmatrix} 3 \\ 11 \end{pmatrix}, iii). \begin{pmatrix} -2 & -3 \\ 2 & -3 \end{pmatrix}$

63. 20%

64. 12.9cm

65. $x = \frac{9}{2}$

66. 140°

67. 0.016

68. 8.88cm^2

69. $2y(2x + 3)$

70. $\frac{1}{8}$

71. i) $\begin{pmatrix} 20 & 10 \\ 25 & 13 \end{pmatrix}$,

72. $x = 1, y = 4$

73. -20

74. $a = \frac{5}{3}, b = 5, c = 5, d = \frac{5}{3}$

75. i). $\frac{9}{25}, ii). \frac{16}{25}$

76. K250.00

77. $x = \frac{Ah^2 - 2\pi r^2}{2\pi h - Ay}$

78. $\frac{3(x-y)}{x+y}$

79. $x = 36°$

80. 1920

81. Jane she's 18years, the sister26years and the brother 6years

82. i). K540, ii). K3,540, iii). K295

83. 425.57cm^3

84. 14.67g/cm^3

85. $x = -2$

86. $\frac{x^2yz}{3}$

87. 16

88. AC = 9.22cm

89. $y = \sqrt{(x+2)(x-3)}$

90. $x \geq -8$

91. i). b = 9.84cm, ii). d = 5.74cm

92. $\frac{4+7x}{15}$

93. K2,000

94. 6.54cm^2

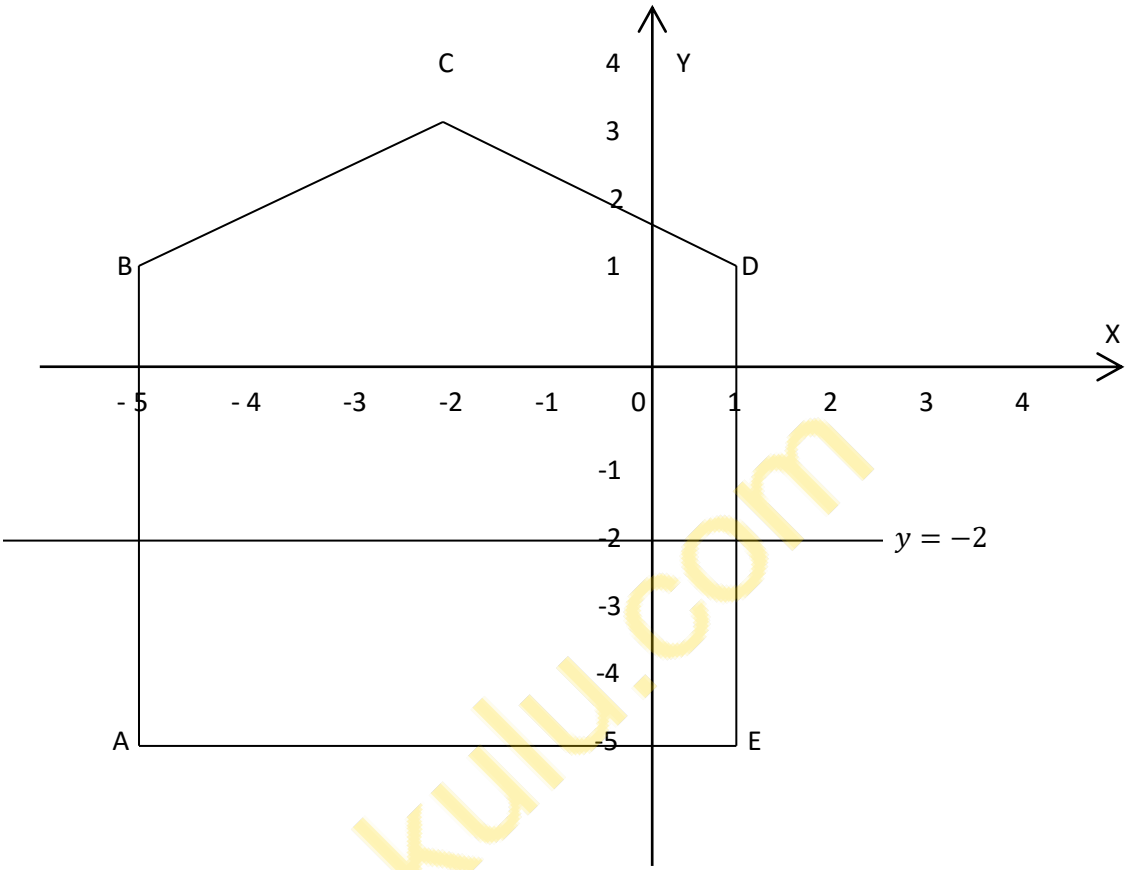
95. $X = 5,\ hence\ \Delta ABC = 40°$

96. 8.33×10^5

97. $x = 5$

98. K59,419

99.



100. ii). CT= 4.9cm, iii) A=$9.98cm^2$