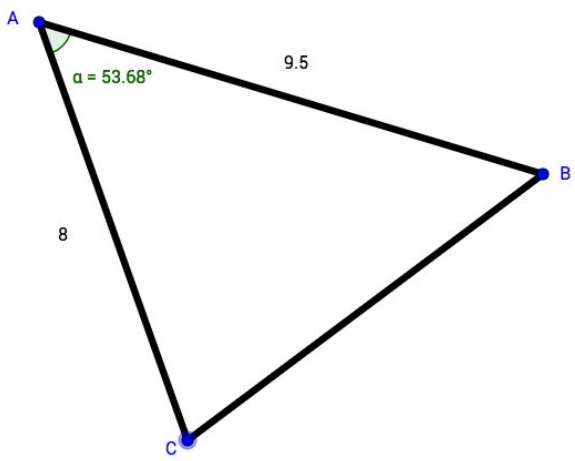
Math SL PROBLEM SET 4

Section A

1. (**T3.6 - R**) (CA) In Δ ABC as shown, determine:



   a. The measure of side BC.

   b. The measure of angle $\measuredangle ABC$.

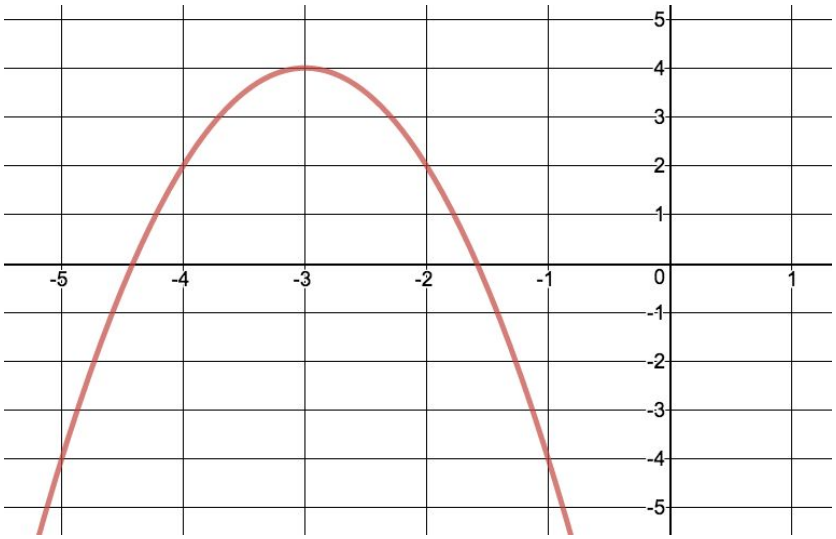
   (Cirrito 9.5.4, p300)

2. (**F2.3, 2.4 - R**) (CI) For the quadratic function graphed below, determine: *(Cirrito 2.4.2, p44)*

   a. The equation and express your final answer in standard form.

   b. The exact values of the zeroes.

   c. The transformations that were applied to the parent function, $f(x) = x^2$.



3. (**F2.2, 2.5 - R**) (CI) For the rational function $f(x) = \frac{2x-5}{3-4x}$, determine: *(Cirrito 5.3.5, p144)*

   a. The equations of the asymptotes of $y = f(x)$.

   b. The equation of the inverse function, $y = f^{-1}(x)$.

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4. (**SP5.1, 5.2 - R**) (CA) Determine the mean and median of the following data sets: ***(Cirrito 13.3, p474)***

(a) Set of Raw Data for Leila's discus throws

22.45 m, 23.47 m, 19.58 m, 21.40 m, 22.49 m, 21.75 m, 27.03 m, 26.00 m, 24. 73 m, 24.00 m

(b) Frequency Table for Mostafa's Homework Grades

Score on 5	Frequency
0	6
1	2
2	1
3	7
4	2
5	4

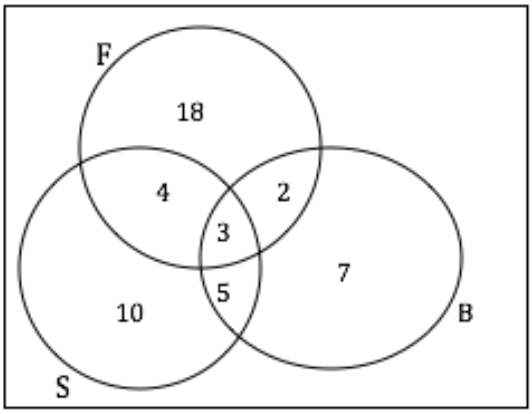
(c) Grouped Data Set for Kholood's 200m sprint times

Time Intervals	Frequency
$28 \leq t < 30$	2
$30 \leq t < 32$	5
$32 \leq t < 34$	4
$34 \leq t < 36$	8
$36 \leq t < 38$	9
$38 \leq t < 40$	2

5. (**SP5.5, 5.6 - R**) (CI) A group of 60 students were asked if they played field hockey (F), basketball (B) or soccer (S). The diagram below displays the results. ***(Oxford 3.2, p68)***

How probable is it that a randomly chosen student plays:

i. field hockey & basketball?
ii. field hockey or basketball?
iii. field hockey & soccer?
iv. neither of the three sports?
v. only 1 sport?
vi. Basketball given that they play soccer?
vii. Soccer given that they play field hockey?



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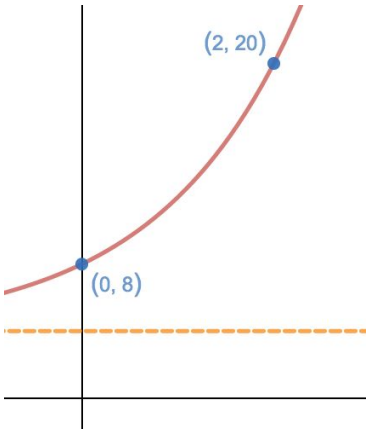
6. (**F2.6 - R,E**) (CA) The graph of the function $f(x) = A(2^x) + B$ is shown. ***(Cirrito 5.3.3, p131)***



   a. Find the value of $f(3)$
   b. The equation $f(x)$ can be rewritten in the form of $f(x) = 2^{x+k} + B$. Determine the value of k.
   c. The equation $f(x)$ can be rewritten in the form of $f(x) = A(e^{Rx}) + B$. Determine the value of R.

7. (**A1.1 - E,N**) (CI) What is the pattern in the following number sequences? (if none, write "no pattern"). If possible, predict the 10th term in each sequence. ***(Cirrito 8.1.1, p241)***

   a. 8, 11, 14, 17, …
   b. 800, 400, 200, 100, …
   c. -1, 6, -14, 2, 11, 18, …
   d. 3, 8, 15, 24, 35, 48, …
   e. -3, 1, 7, 15, 25, 37, …
   f. 2, 4, 8, 16, 32, 64, …
   g. 8, 17, 31, 56, 76, 93, …