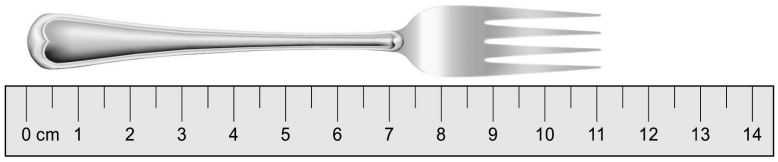
TT F2 LQ1

Section A: Short Questions (14 marks)

(Working steps are NOT required in this section.)

1. Referring to the figure,



(a) Find the maximum absolute error of the measurement.

(b) Find the least possible length of the paper fork.

2. In a long jump competition, Billy made a record of 4.15 m. Given that the maximum absolute error is 0.2m.

(a) the relative error,

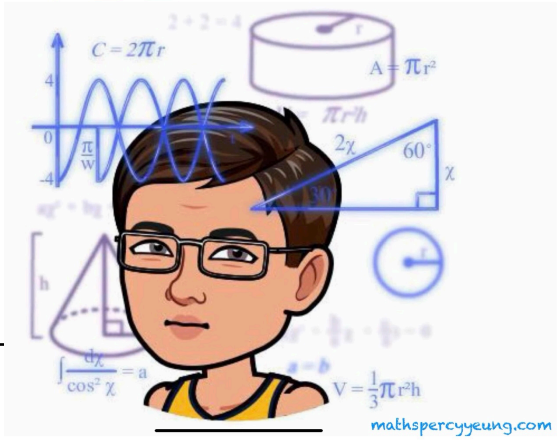
(b) the percentage error of the record.

3. Expand the following algebraic expressions.

(a) $(x-4)(x+4)$,

(b) $(a+3)^2$,

(c) $(4p+q)(q-4p)$.



4. Factorize the following algebraic expressions.

(a) $pq+3q$,

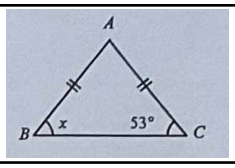
(b) $x^2+10x+25$.

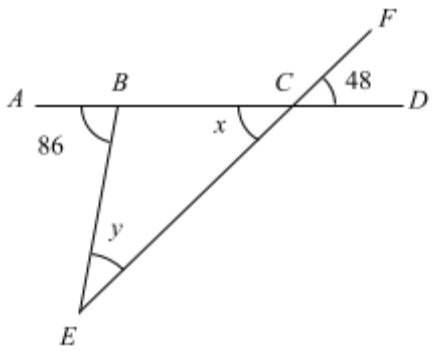
5. Simplify $-\dfrac{12xy}{3y}$.

6. In the formula $D=b^2-5ac$, find the value of D if

$b=-1$, $a=2$ and $c=-2$.

7. In the figure, $AB = AC$. Find x.



8. In the figure, *ABCD*, *ECF*, are straight lines. Find *x* and *y*.  	

~End of Section A~

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Section B: Conventional Questions (41 marks)

1. Prove that the equation $5(5x+3)-25=32x-(7x+10)$ is an identity. (3 marks)

2. Factorize the following expressions.

   (a) $3x^3y^3 - 12x^2y^5 + 21x^4y^2$

   (b) $(3x-2)^2-2(3x-2)$

   (4 marks)

3. The measured weight of a piece of metal sheet is 22.55 g. The percentage error of the metal sheet is 2%.

   (a) Find the maximum absolute error of the measurement.

   (b) Find the range of the actual weight of the piece of metal sheet. (4 marks)

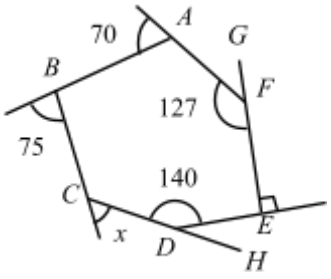
4. Consider the formula $7a = 3(2a - 4b) + c$.

(a) Make a the subject of the formula.

(b) If $b = 2$ and $c = 7$, find a.

(4 marks)

13. In the figure, $ABCDEF$ is a polygon.



(a) Find $\angle AFG$ and $\angle EDH$.

(b) Find x.

(5 marks)

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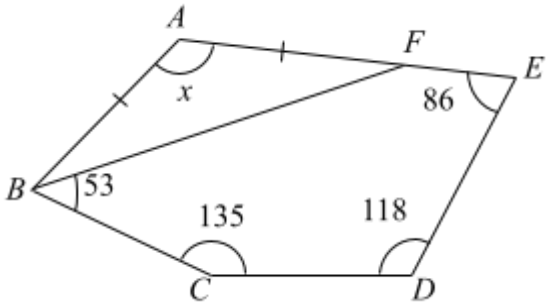
14. Simplify the following expressions.

(a) $\frac{4a}{3}-\frac{2a}{6}$

(b) $\frac{5}{x-y}+\frac{x+1}{y-x}$

(5 marks)

15. In the figure, AFE is a straight line and $AB = AF$.



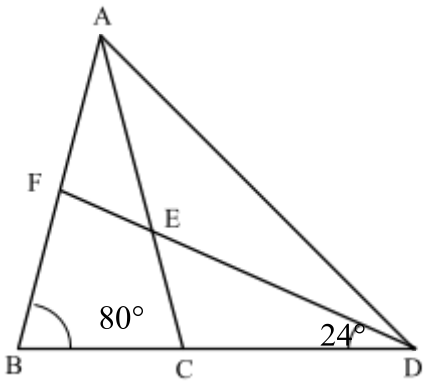
(5 marks)

16. Simplify $\dfrac{2ab-6b^2}{ab(5a+b)} \div \dfrac{(a-3b)(a+2b)}{5a^2+ab} + \dfrac{3ab}{2(a+2b)}$.

(4 marks)

17. In the figure, BCD, AFE and FED are straight lines and $\Delta ABC \cong \Delta DBF$. It is given that

$\angle ABC = 80°$ and $\angle BDF = 24°$.



~End of Section B~

Section C: Bonus Questions (8 marks)

18. (a) (i) Expand $(x-4)^2$.

(ii) Hence or otherwise, factorize $(y-4)(y-3)+y^2-8y+16$.

(b) (i) By using (a)(ii), factorize $w=(t-3)(t-2)+(t+1)^2-8(t+1)+16$.

(ii) If $w=0$ and t is an integer. Find the value of t.

[Hint: If $ab=0,$ then either $a=0$ or $b=0.$]

(5 marks)

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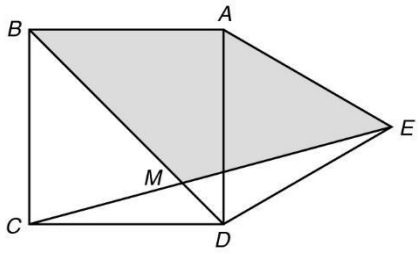
19. In the figure, $ABCD$ is a square, $\triangle ADE$ is an equilateral triangle and BD intersects CE at M. Find $\angle BME$.

(3 marks)



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