St. Stephen's Girls' College
Final Examination 2020-2021

Form 2 **LHK, KAL, SCHL, YLN**
166 students

MATHEMATICS
Paper II
Time Allowed: 1 hour

Name: _____ No.: _____ Class: _____ Division: _____

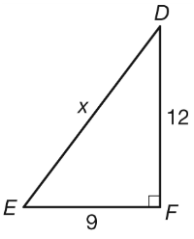
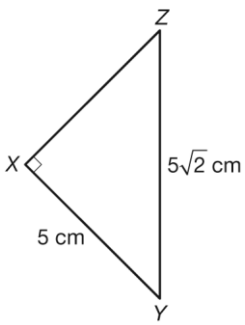
Instructions:

- *Answer **ALL** questions in the spaces provided in this **Question-Answer Paper**.*
- *All rough work should be done on the rough work paper provided, but will not be marked.*
- *The diagrams in this paper are not necessarily drawn to scale.*
- *Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.*
- *This paper carries 100 marks.*

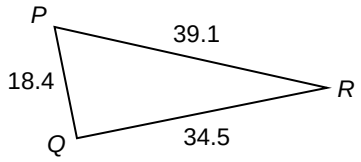
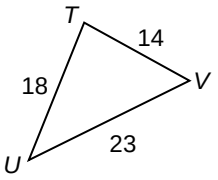
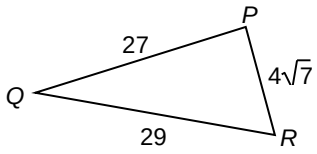
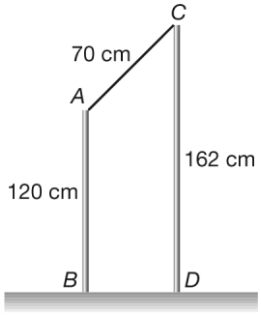
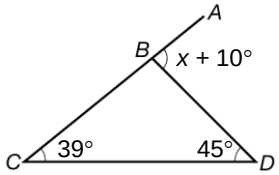
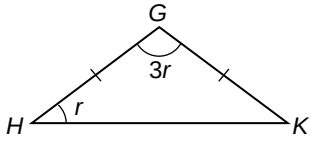
Marks:
/ 100

		Answers	**Marks**
1.	How many significant figures are there in each of the following numbers? (a) 0.039 60 (b) 100 000 (correct to the nearest hundred)	1. (a) _____ (b) _____	 1 1
2.	Do the following measurements have a maximum absolute error of 0.2? Circle the correct answers. (a) Measured value = 2.0, correct to the nearest 0.4. (b) Using a measuring tool with a scale interval of 0.2. (c) Measured value = 10, relative error = 0.02.	2. (a) Yes / No (b) Yes / No (c) Yes / No	 1 1 1
3.	Simplify $(\frac{a}{2b^2})^3 \times 24ab^4$ and express your answer in positive indices.	3. _____	2
4.	Which of the following polynomials has/have the highest degree? I. $4x^2y-5xy^6$ II. $40x+\frac{1}{3}x^2y^3-z^7$ III. $100xyzst$	4. _____	2
5.	Find the value of the polynomial $\frac{3}{2}x^2+\frac{4}{3}y^3z+5xy$ if $x=-2$, $y=3$ and $z=\frac{1}{2}$.	5. _____	2
6.	Expand and simplify the following polynomials. (a) $2(x^2+3xy-5y^2)-(x^2-xy-4y^2)$ (b) $(x-3y)(x+3y)+3x^2+5y^2$	6. (a) _____ (b) _____	 2 2
7.	If $-4x-A\equiv B(2x-3)$, where A and B are constants, find the value of A.	7. _____	2
8.	Determine if each of the following is an identity. (a) $4x-5=1-2(3-2x)$ (b) $\frac{2y-1}{4}-\frac{3y+1}{3}=\frac{-7-6y}{12}$	8. (a) Yes / No (b) Yes / No	 2 2
9.	It is given that $v^2=u^2+2as$. If a = 8, v = 10 and u = 6, what is the value of s ?	9. _____	2
10.	Simplify the following expressions. (a) $\frac{a-3}{a}\times\frac{a^2-2a}{6-2a}$ (b) $\frac{x}{2(y-x)}-1+\frac{y}{3(x-y)}$	10. (a) _____ (b) _____	 2 3

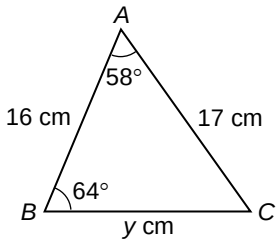
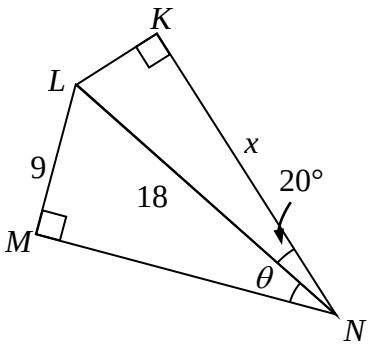
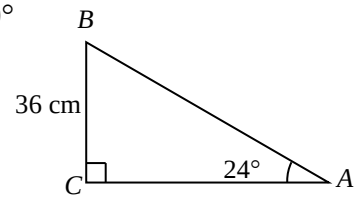
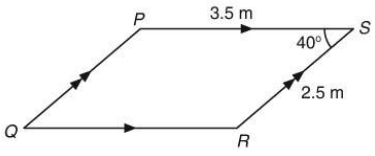
Subtotal: **/ 28**

11.	It is given that $b=\frac{3+a}{a-2}$. Make a the subject of the formula.	11. _____	3
12.	Determine if each of the following points lies on the graph of the equation $4x-3y=12$. I. $(3,4)$ II. $(6,4)$ III. $\left(\frac{18}{5},\frac{4}{5}\right)$	12. _____	3
13.	Solve the simultaneous equations $\begin{cases}2x+y=4\\3x-y=11\end{cases}$.	13. $x=$ _____ $y=$ _____	2 2
14.	In a store, chicken legs are sold at a rate of \$20.5 / kg. What is the price of 400 g of chicken legs?	14. _____	2
15.	Suppose 25000 H.K. dollars is equivalent to 2400 British pounds. How much H.K. dollars is needed to change to 2000 British pounds? Correct your answer to the nearest dollar.	15. _____	3
16.	In a school, there are 1 200 students. The ratio of the number of boys to the number of girls is 5 : 3. If the ratio of the number of girls who wear glasses to those who do not wear glasses is 4 : 5, find the number of girls who wear glasses.	16. _____	2
17.	It is given that $\frac{x}{8}+\frac{y}{5}=y-\frac{x}{2}$, where x and y are non-zero numbers. Find $x : y$.	17. _____	3
18.	In a map, 5 cm represents an actual distance of 2 km. What is the actual area in km^2 represented by a rectangular field which is 4 cm by 9 cm on the map?	18. _____	3
19.	In the figure, find the value of x. 	19. _____	2
20.	In ΔXYZ, $\angle X = 90°$, $XY = 5$ cm and $YZ = 5\sqrt{2}$ cm. Find the length of XZ. 	20. _____	3

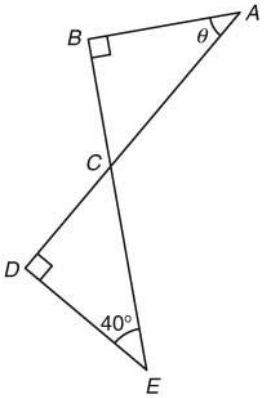
Subtotal: / 28

21.	Which of the following is/are right-angled triangle(s)? I.  II.  III.  	21. _____	3
22.	The heights of poles *AB* and *CD* are 120 cm and 162 cm respectively. They stand vertically on a horizontal ground. A string of 70 cm long is used to tie up the tops of the poles. Find the distance between *B* and *D*.  	22. _____	3
23.	Simplify $3\sqrt{7}-7\sqrt{28}$ and express your answer in surd form.	23. _____	3
24.	In the figure, *ABC* is a straight line. Find *x*.  	24. _____	3
25.	In the figure, find the value of *r*.  	25. _____	3

Subtotal: / 15

26.	In the figure, find the value of y. 	26. _____	2
27.	In a regular n-sided polygon, the size of an interior angle is greater than the size of an exterior angle by 120°. Find the value of n.	27. _____	3
28.	In the figure, find x and θ. (Give your answers correct to 3 significant figures if necessary.) 	28. x = _____ θ = _____	2 2
29.	In the figure, $\angle A = 24°$, $\angle C = 90°$ and $BC = 36$ cm. Find $\angle B$, AB and AC. (Give your answers correct to 3 significant figures if necessary.) 	29. $\angle B$ = _____ AB = _____ AC = _____	1 2 2
30.	In the figure, $PQRS$ is a parallelogram, PS = 3.5 m, RS = 2.5 m and $\angle S = 40°$. Find the area of $PQRS$. (Give your answer correct to 3 significant figures.) 	30. _____	3
31.	Find the value of $\dfrac{\sin 45°}{2\cos 60° - \sin 30°}$. (Leave your answer in surd form if necessary.)	31. _____	3
32.	Find the acute angle x in each of the following. (a) $\sin x = \dfrac{\tan 60°}{2}$ (b) $\dfrac{1}{\tan x} = \tan 52°$ (c) $\sin 5x = \cos 4x$	32. (a) _____ (b) _____ (c) _____	2 2 2

Subtotal: **/ 26**

33.	In the figure, *ACD* and *BCE* are straight lines. $\angle B = \angle D = 90°$, $\angle E = 40°$ and $\angle A = \theta$. Which of the following is/are true? Circle the correct answers. (a) $\theta = 50°$ (b) $\cos\theta = \frac{DE}{CE}$ (c) $\tan\theta = \frac{DE}{CD}$		33. (a) Yes / No (b) Yes / No (c) Yes / No	 1 1 1

Subtotal: **/ 3**

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