Carlingford High School

2019

Year 10 5.2 Term 3 Exam

Time allowed 50 min

Name..... Solutions .....

Teacher: *(Please Circle)*

Mr Cheng Q1-8
Ms Aung Q14-18
Mr Wilson Q19-22
Mrs Lego Q9-13

General Instructions

- Do not write in columns
- Marks may be deducted for careless or badly arranged work
- Only calculators approved by the Board of Studies may be used
- All answers are to be completed in black pen except graphs and diagrams
- No lending or borrowing

Q1 Trig	**Q2** Binomial	**Q3** Probability	**Total**
/25	/14	/29	/68

Trig.

1) $4^2 + 17^2 = x^2$

$16 + 256 = x^2$

$305 = x^2$

$x = 17.5$

2) $7.2^2 + 6.2^2 = 10.2^2$

$90.28 \neq 104.04$

$\therefore$ not right angled.

3) $\cos 32^\circ = \frac{x}{18.9}$

$x = 18.9 \cos 32$

$= 16.03 \text{ cm}$

4) $\tan\theta = \frac{26}{27.56}$

$\theta = 43^\circ 20'$

$\div 43^\circ$

5) $\sin 23^\circ 46' = \frac{11}{P}$

$P = \frac{11}{\sin 23^\circ 46'}$

$= 27.3$

6) $\tan 42^\circ = \frac{x}{30}$

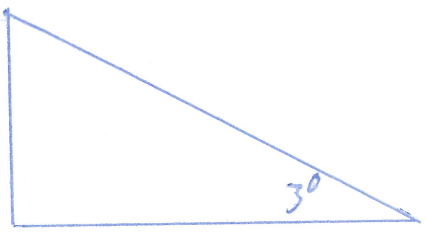
$x = 30 \tan 42$

$= 27.01$ plus 1.8

$= 28.8 \text{ m}$

7)

i)



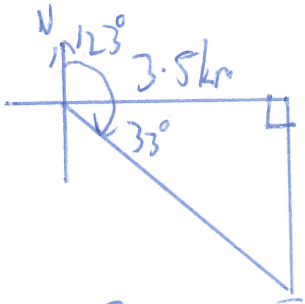
ii) $\tan 3^\circ = \frac{x}{1336}$

$x = 1336 \tan 3^\circ$

$= 70 \text{ m}$

8)

i)



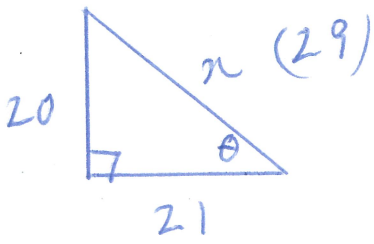
ii) $\cos 33 = \frac{3.5}{x}$

$x = \frac{3.5}{\cos 33}$

$= 4.173 \text{ km}$

$= 4173 \text{ m}$

9) $\tan\theta = \frac{20}{21}$



$20^2 + 21^2 = x^2$

$400 + 441 = x^2$

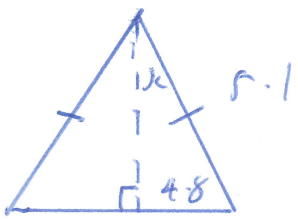
$x^2 = 841$

$x = 29$

$\therefore \sin\theta = \frac{20}{29}$

$\cos\theta = \frac{21}{29}$

10)



$\sin x = \frac{4.8}{5.1}$

$x = 70^\circ 15'$

$\theta = 2x = 140^\circ 30'$

$= 141^\circ$

11) $\tan 23 = \frac{135}{AX}$

$AX = \frac{135}{\tan 23}$

$= 318$

$\tan 48 = \frac{BX}{135}$

$BX = 135 \tan 48$

$= 150$

$AB = 318 - 150$

$= 168\,m$

12) i) $(x+6)(x-4)$

$x^2 + 6x - 4x - 24$

$x^2 + 2x - 24$

ii) $(3b+4)(2b-1)$

$6b^2 - 3b + 8b - 4$

$6b^2 + 5b - 4$

iii) $(2-5a)(5a-2)$

$10a - 4 - 25a^2 + 10a$

$20a - 25a^2 - 4$

13) i) $x^2 + 9x + 18$

$(x+3)(x+6)$

ii) $d^2 - d - 56$

$(d-8)(d+7)$

iii) $a^2 - 12a + 27$

$(a-3)(a-9)$

14) i) $a - 4$

$b - 2$

ii) $(a-4)(b-2)$

iii) $ab - 4b - 2a + 8$

iv) $ab - (ab - 4b - 2a + 8)$

$ab - ab + 4b + 2a - 8$

$= 4b + 2a - 8$

Prob.

15) i) $\frac{35}{60} : \frac{7}{12}$

ii) $\frac{1}{2}$

16) i) dependent

ii) independent

17) i) 60

ii) $\frac{31}{60}$

iii) **7/60**

iv) $\frac{9}{60} : \frac{3}{20}$

v) $\frac{5}{60} : \frac{1}{12}$

18) i) $\frac{13}{30}$

ii) $\frac{9}{30} : \frac{3}{10}$

iii) $8 + 10 = 9$

9/30 : 3/5

iv) $\frac{9}{30} : \frac{3}{10}$

19) i)

	H	T
H	HH	HT
T	HT	TT

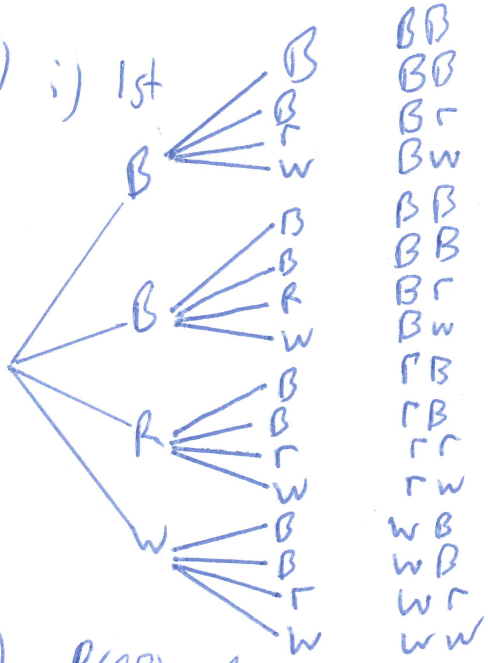
ii) $\frac{1}{4}$

iii) $\frac{1}{2}$

iv) $\frac{3}{4}$

20) $\frac{3}{6} = \frac{1}{2}$

21) i) 1st



BB
BB
BR
BW
BB
BB
BR
BW
RB
RB
RR
RW
WB
WB
WR
WW

ii) $P(BB) = \frac{4}{16} = \frac{1}{4}$

iii) $\frac{2}{16} = \frac{1}{8}$

iv) $\frac{2}{16} = \frac{1}{8}$

v) $\frac{10}{16} = \frac{5}{8}$

22) i) $\frac{1}{4} \times \frac{1}{3} = \frac{1}{12}$

ii) $\frac{9}{12} = \frac{3}{4}$

iii) $\frac{4}{12} = \frac{1}{3}$

iv) $\frac{4}{12} = \frac{1}{3}$