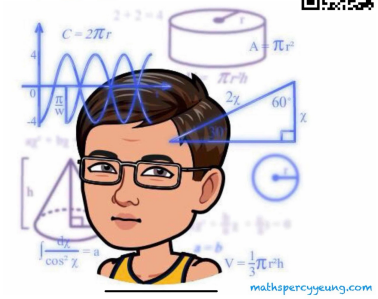
SY F1 2020-2021 Final Maths II



Final Examination (2020 – 2021)
Mathematics Paper 2

Form 1

- **Answer all questions.**
- **The diagrams in this paper are not necessarily drawn to scale.**
- **Use HB pencils to mark your answers on your MC answer sheet.**

Time allowed: 1 hour

1. $-4+24\div4\times2=$

   A. -1. B. 2.5. C. 8. D. 10.

2. Which of the following results is an integer?

   A. $\frac{2021}{3}$ B. $\frac{2012}{4}$ C. $\frac{2102}{5}$ D. $\frac{2210}{6}$

3. $(2020-2021)^2=$

   A. -2. B. -1. C. 1. D. 2.

4. The product of the first three prime numbers is

   A. 6. B. 10. C. 15. D. 30.

5. Which of the following equations describes 'when 3 is subtracted from x, the result is the square of 3'?

   A. $x-3=3^2$ B. $3-x=3^2$ C. $x-3=2(3)$ D. $3-x=2(3)$

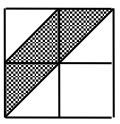
6. Round down 9.87654321 to 4 significant figures.

   A. 9.877 B. 9.876 C. 9.8766 D. 9.8765

7. $\frac{90\%-1}{10\%}=$

   A. -0.1%. B. -1%. C. -10%. D. -100%.

8. The figure shown is formed by 4 squares of same size. What percentage of the area of the figure is shaded?



   A. 25% B. 37.5%
   C. 50% D. 62.5%

9. If the figure is rotated 270° about the fixed point O in the anticlockwise direction, which of the following figures represent the image?

   A. 

   B. 

   C. 

   D. 

10. The price of a pen is \$27.4. Peter wants to buy 20 pens. By rounding up the price of each pen to the nearest \$1, the estimated total price is

    A. \$540. B. \$548. C. \$550. D. \$560.

11. Which of the following products is the greatest?

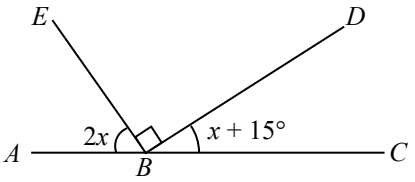
    A. 55×666 B. 44×777 C. 77×444 D. 88×333

12. It is given that £1 = HK$10 and ¥1000 = HK$72. £18 =

A. ¥400. B. ¥1296. C. ¥1800. D. ¥2500.

13. In the figure, ABC is a straight line. Find $\angle CBD$.

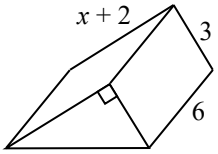
A. 25°
B. 30°
C. 40°
D. 50°



14. It is given the formula $\frac{1}{u}+\frac{1}{v}=\frac{1}{f}$. If $u = 15$ and $v = 30$, find the value of f.

A. 3 B. 5 C. 10 D. 15

15. The figure shows a right prism with a right-angled triangular base. Find its volume in terms of x.



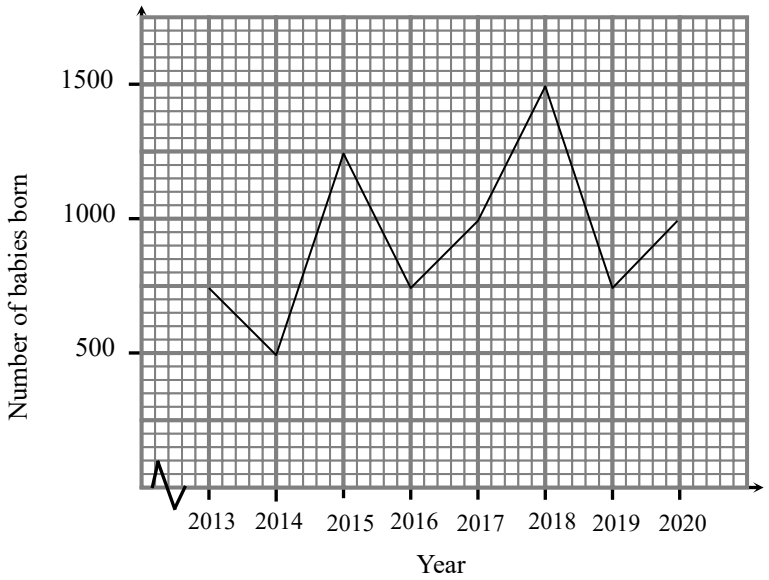
A. $9x + 18$ B. $9x + 36$
C. $18x + 18$ D. $18x + 36$

16. If $3a = 4b = 6c$, then $a : b : c =$

A. $2 : 3 : 4$. B. $3 : 4 : 6$. C. $4 : 3 : 2$. D. $6 : 4 : 3$.

Study the following broken-line graph and answer question 17 – 18.

Number of babies born in City A from 2013 to 2020



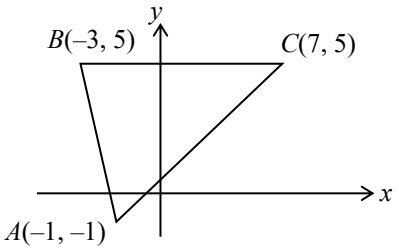
17. Find the difference of the greatest and the smallest number of babies born from 2013-2020.

A. 250 B. 500 C. 750 D. 1000

18. Between which two years was the percentage decrease of the number of babies born the greatest?

A. 2013 and 2014 B. 2014 and 2015 C. 2015 and 2016 D. 2018 and 2019

19. In the figure, find the area of ΔABC.



A. 25
B. 30
C. 50
D. 60

20. A soft drink is sold in packs of 6, 12 and 24 cans. Peter wants to buy exactly 90 cans. What is the minimum number of packs he needs to buy?

A. 4 B. 5 C. 6 D. 8

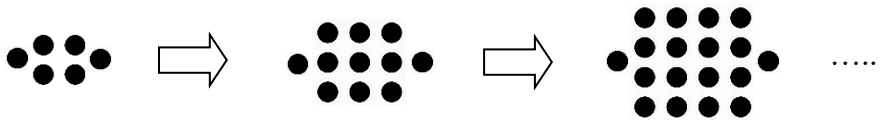
21. It is given that $T(n)=\dfrac{4-n}{n+1}$ is the general term of a sequence. If $T(k)$ is positive, find the number of possible values of k.

A. 1 B. 2 C. 3 D. 4

22. If $\dfrac{a-b}{2a+b}=\dfrac{1}{3}$, then $a:b=$

A. $4:1$. B. $4:5$. C. $1:3$. D. $1:4$.

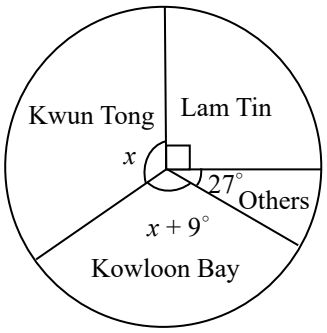
23. In the figure, the 1st pattern consists of 6 dots. For any positive integer n, the $(n+1)$th pattern is formed by adding $(2n+3)$ dots to the nth pattern. Find the number of dots in the 6th pattern.



A. 38 B. 49 C. 51 D. 66

24. The pie chart shows the residential districts of 160 F.1 students in a school. Find the number of students living in Kwun Tong.

Residential Districts of F1 students



A. 40
B. 52
C. 56
D. 117

25. It is given that $3a+2(b-1)=12$ and $a:b=1:2$. $b=$

A. 2. B. 4. C. $\dfrac{13}{7}$. D. $\dfrac{26}{7}$.

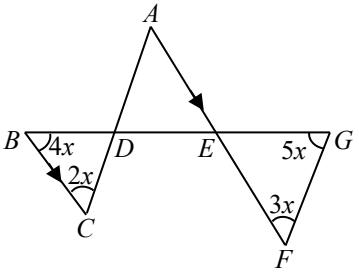
26. The rectangular coordinates of M and N are $(6, a)$ and $(6, a-2)$ respectively. $MN=$

A. 2. B. 4. C. 8. D. a.

27. $P(a,4)$ is rotated anticlockwise about O through $90°$, where $a>0$. $Q(b,2a)$ is translated 6 units downwards. It is given that the images of P and Q are the same. Find the value of a.

A. 2 B. 3 C. 4 D. 6

28. In the figure, find $\angle A$.



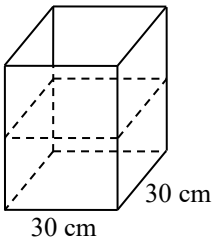
A. 15°

B. 18°

C. 30°

D. 36°

29. In the figure, 18000 cm^3 of water is poured into the container. Find the total wet area of the container.



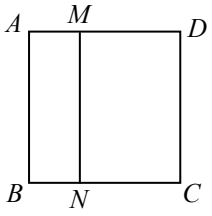
A. 3000 cm^2

B. 3300 cm^2

C. 3600 cm^2

D. 4200 cm^2

30. In the figure, $ABCD$ is a square. M and N are points on AD and BC respectively. It is given that $AM : MD = BN : NC = 1 : 2$. $\dfrac{\text{The perimeter of the rectangle } ABNM}{\text{The perimeter of the rectangle } MNCD} =$



A. $\frac{1}{2}$. B. $\frac{1}{3}$. C. $\frac{3}{4}$. D. $\frac{4}{5}$.

31. A man sold a car for \$35 000 at a loss of 30% on the cost price. What would have been the loss or gain percent if he had sold it for \$50 500?

A. A gain of 1 % B. A gain of 10% C. A loss of 10% D. A loss of 1 %

32. 70% of a class of students are girls. If 3 more boys join the class, then the number of girls will be twice the number of boys. Find the original number of students of the class.

A. 45 B. 48 C. 60 D. 82

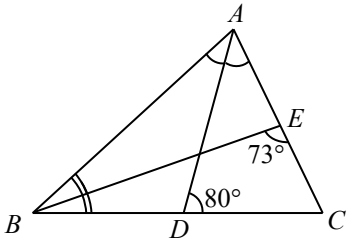
33. The scale of a map is $1 : 4000$. If the actual area of a garden is 3200 m^2, then the area of the garden on the map is

A. 0.8 cm^2. B. 2 cm^2. C. 8 cm^2. D. 20 cm^2.

34. A swimming pool is filled up with water in 1 hour 36 minutes by using 4 pipes. Suppose the rate of water flow of each pipe is the same. If 2 more pipes are used, the swimming pool can be filled up x minutes earlier. Find x.

A. 32 B. 36 C. 48 D. 64

35. In the figure, $\angle ABE = \angle CBE$ and $\angle BAD = \angle CAD$. $\angle C =$



A. 50°.

B. 64°.

C. 74°.

D. 78°.

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