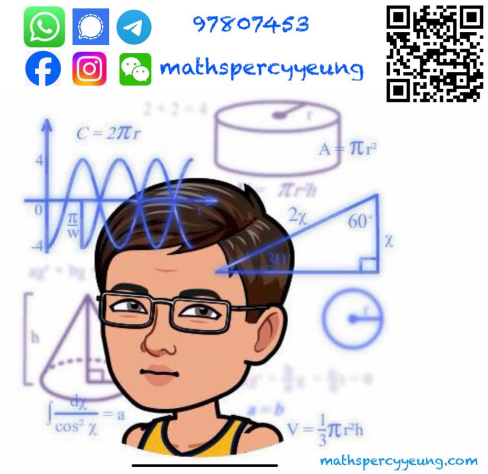
2024-2025 S3
上學期統測二
數學



2024 – 2025

中三級上學期統測二

數學

二零二四年十二月十二日
時限: 30 分鐘
總分: 23

考生須知

(一) 細讀答題紙上的指示。宣布開考後，考生須首先在適當位置填寫學生姓名、班別及學號。

(二) 試場主任宣布開卷後，考生須檢查試題有否缺漏，最後一題之後應有「**試卷完**」字樣。

(三) 本試卷各題佔分相等。

(四) **本試卷全部題均須回答**。為便於修正答案，考生宜用 HB 鉛筆把答案填畫在答題紙上。錯誤答案可用潔淨膠擦將筆痕徹底擦去。

(五) 每題只可填畫**一個**答案，若填畫多個答案，則該題**不給分**。

(六) 答案錯誤，不另外扣分。

(七) 本試卷的附圖不一定依比例繪成。

(八) 可以使用已印上「H.K.E.A.A. APPROVED」標籤的計算機。

選出每題最佳的答案。

1. Jacky is 32 years old. Karen is younger than Jacky by x years. If the sum of their ages is 59, which of the following equations can be used to find the value of x?
   A. $32+(32-x)=59$
   B. $32+(32+x)=59$
   C. $32-x=59$
   D. $32+x=59$

2. The cost price of a saxophone is \$2 000. It is sold at a discount of 20% and the profit per cent is 30%. Find the marked price of the saxophone.
   A. \$2 080
   B. \$2 200
   C. \$2 600
   D. \$3 250

3. If a and b are constants such that $(x+4)(x-8)\equiv(x+a)^2+b$, then $b=$
   A. –48.
   B. –36.
   C. –32.
   D. –4.

4. $4a^2-4a+1-b^2=$
   A. $(2a-b-1)(2a+b+1)$.
   B. $(2a-b-1)(2a-b+1)$.
   C. $(2a+b-1)(2a-b+1)$.
   D. $(2a+b-1)(2a-b-1)$.

5. 已知 $x^2+bx+24\equiv(x+m)(x+n)$ ，其中 m 和 n 是整數。下列何者不可能是 b 的值？
   A. 10
   B. 11
   C. 12
   D. 14

6. $-4k^2+12k-9=$
   A. $-(2k-3)^2$.
   B. $(2k+3)^2$.
   C. $(2k-3)^2$.
   D. $-(2k+3)^2$.

7. $81a^4-16b^4=$
   A. $(9a^2+4b^2)(3a+2b)^2$.
   B. $(9a^2+4b^2)(3a+2b)(3a-2b)$.
   C. $(3a-2b)^4$.
   D. $(3a+2b)^2(3a-2b)^2$.

8. $2^9+2^{12}+6=$
   A. 100100000110_2.
   B. 100100000011_2.
   C. 1001000001100_2.
   D. 1001000000110_2.

9. $(9\cdot3^{n+2})^3=$
   A. 3^{3n+12} .
   B. 3^{3n+7} .
   C. 3^{2n+7} .
   D. 3^{n+7} .

10. 以科學記數法表示 $881\,621\,000\times10^{-5}$ ，並準確至三位有效數字。
   A. 8.81×10^3
   B. 8.816×10^3
   C. 8.82×10^4
   D. 8.82×10^3

11. $\dfrac{10x^2}{(5x^{-3})^{-2}}=$
   A. $250x^4$.
   B. $\dfrac{250}{x^4}$.
   C. $\dfrac{2x^4}{5}$.
   D. $\dfrac{2}{5x^4}$.

12. 某劇院中，一張門票的票價是 $\$x$。該劇院現為每名學生的門票票價提供 20% 的折扣優惠。若 2 張成人門票和 5 張學生門票的總票價最多為 \$450，求 x 的最大值。

A. 150
B. 75
C. 74
D. 71

13. 有多少個正整數滿足不等式 $3(5-2x) > \dfrac{2x-25}{3}$ ？

A. 2
B. 3
C. 4
D. 5

14. 解不等式 $8(x+2)+9(x-5)<-80$ 。

A. $x<-3$
B. $x>-3$
C. $x<3$
D. $x>3$

15. 下列哪個（些）情境能夠以不等式 $n \geq 33$ 表示？

I. 某魔術學會的學生人數 (n) 不小於 33。
II. n 枚 \$1 硬幣的總值最多為 \$33。
III. n 是一個大於 32 的整數。

A. 只有 I
B. 只有 II
C. 只有 I 及 III
D. I、II 及 III

16. If the angle of sector and the radius of a sector are increased by x% and 20% respectively so that the area of the sector is increased by 116%, then x =

A. 20 .
B. 40 .
C. 50 .
D. 80 .

17. A sum of \$67 000 is deposited in a bank at an interest rate of 2.4% per annum for 2 years, compounded monthly. Find the interest correct to the nearest dollar.

A. \$3 255
B. \$3 274
C. \$3 291
D. \$3 765

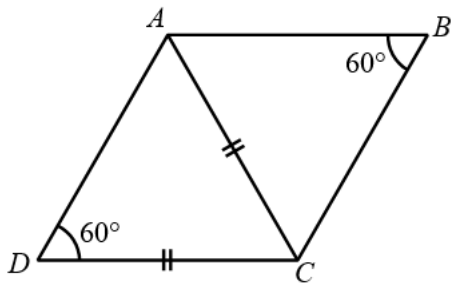
18. The value of a computer has decreased by 12% each year. If the present value of the computer is \$7 000, find the value of the computer two years ago, correct to 3 significant figures.

A. \$5 420
B. \$5 580
C. \$8 780
D. \$9 040

19. Howard's income and expenditure were \$20 000 and \$15 000 respectively in June. He saved the remaining. In July, his income increased by 20% and his expenditure was decreased by 20%. In July, he saves

A. \$800.
B. \$5 000.
C. \$7 000.
D. \$12 000.

20. In the figure, *ABCD* is a quadrilateral, where $\angle ABC = \angle ADC = 60°$ and $CD = CA$.

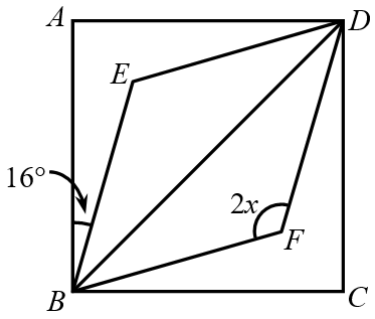


Which of the following must be true?

I. $\triangle ADC$ is an equilateral triangle.
II. *ABCD* is a parallelogram.
III. $\triangle ADC \cong \triangle CBA$

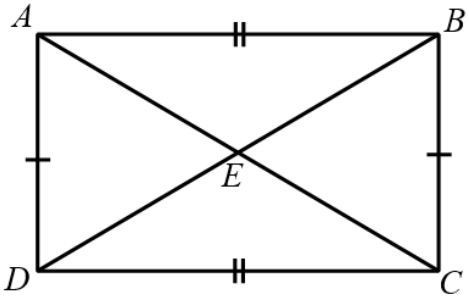
A. I only
B. III only
C. I and II only
D. II and III only

21. In the figure, *ABCD* is a square and *BFDE* is a rhombus. It is given that $\angle ABE = 16°$. Find *x*.



A. 29°
B. 58°
C. 61°
D. 122°

22. In the figure, *ABCD* is a quadrilateral, where *AB* = *DC* and *AD* = *BC*. *AC* and *BD* intersect at *E*.

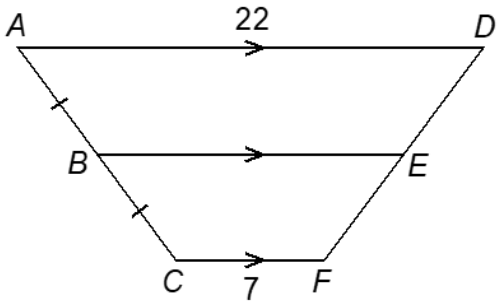


Which of the following must be true?

I. *ABCD* is a parallelogram.
II. $\triangle ADC \cong \triangle CBA$
III. *ABCD* is a rectangle.

A. I and II only
B. I and III only
C. II and III only
D. I, II and III

23. In the figure, *ABC* and *DEF* are straight lines. It is given that $AD \,//\, BE \,//\, CF$, $AD = 22$ and $CF = 7$. Find the length of *BE*.



A. 12
B. 14.5
C. 15
D. 17

試卷完