HKDSE MATH Core Sample Paper II

1. **HKDSE MATH Core Sample Paper II Q1**
   $(3a)^2 \cdot a^3 =$

   A. $3a^5$.

   B. $6a^6$.

   C. $9a^5$.

   D. $9a^6$.

2. **HKDSE MATH Core Sample Paper II Q2**
   If $5 - 3m = 2n$, then $m =$

   A. n.

   B. $\dfrac{2n-5}{3}$.

   C. $\dfrac{-2n+5}{3}$.

   D. $\dfrac{-2n+15}{3}$.

3. **HKDSE MATH Core Sample Paper II Q3**
   $a^2 - b^2 + 2b - 1 =$

   A. $(a-b-1)(a+b-1)$

   B. $(a-b-1)(a+b+1)$

   C. $(a-b+1)(a+b-1)$

   D. $(a-b+1)(a-b-1)$

4. **HKDSE MATH Core Sample Paper II Q4**
   Let p and q be constants. If $x^2 + p(x+5) + q \equiv (x-2)(x+5)$, then $q =$

   A. -25.

   B. -10.

   C. 3.

   D. 5.

5. **HKDSE MATH Core Sample Paper II Q5**
   Let $f(x) = x^3 + 2x^2 - 7x + 3$. When $f(x)$ is divided by $x + 2$, the remainder is

   A. 3.

   B. 5.

   C. 17.

D. 33.

6. **HKDSE MATH Core Sample Paper II Q6**
Let a be a constant. Solve tne equation $(x-a)(x-a-1)=(x-a)$.

A. $x=a+1$

B. $x=a+2$

C. $x=a$ or $x=a+1$

D. $x=a$ or $x=a+2$

7. **HKDSE MATH Core Sample Paper II Q7**
Find the range of values of k such that the quadratic equation $x^2-6x=2-k$ has no real roots.

A. $k<-7$

B. $k>-7$

C. $k<11$

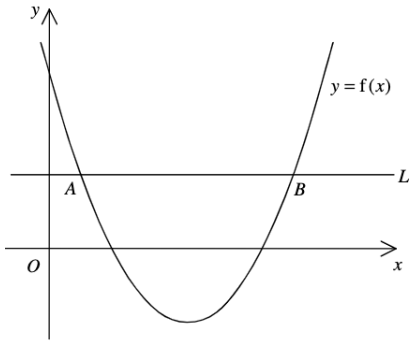
D. $k>11$

8. **HKDSE MATH Core Sample Paper II Q8**
In the figure, the quadratic graph of $y=f(x)$ intersects the straight line L at $A(1,k)$ and $B(7,k)$. Which of the following are true?

I. The solution of the inequality $f(x)>k$ is $x<1$ or $x>7$.

II. The roots of the equation $f(x)=k$ are 1 and 7.

III. The equation of the axis of symmetry of the quadratic graph of $y=f(x)$ is $x=3$.



A. I and II only

B. I and III only

C. II and III only

D. I, II and III

9. **HKDSE MATH Core Sample Paper II Q9**
The solution of $5-2x<3$ and $4x+8>0$ is

A. $x>-2$.

B. $x>-1$.

C. $x>1$.

D. $-2 < x < 1$.

10. **HKDSE MATH Core Sample Paper II Q10**
Mary sold two bags for \$240 each. She gained 20% on one and lost 20% on the other. After the two transactions, Mary

A. lost \$20.

B. gained \$10.

C. gained \$60.

D. had no gain and no loss.

11. **HKDSE MATH Core Sample Paper II Q11**
Let a_n be the nth term of a sequence. If $a_1 = 4$, $a_2 = 5$ and $a_{n+2} = a_n + a_{n+1}$ for any positive integer n, then $a_{10} =$

A. 13.

B. 157.

C. 254.

D. 411.

12. **HKDSE MATH Core Sample Paper II Q12**
If the length and the width of a rectangle are increased by 20% and x% respectively so that its area is increased by 50%, then $x =$

A. 20.

B. 25.

C. 30.

D. 35.

13. **HKDSE MATH Core Sample Paper II Q13**
If x, y and z are non-zero numbers such that $2x = 3y$ and $x = 2z$, then $(x + z) : (x + y) =$

A. 3 : 5.

B. 6 : 7.

C. 9 : 7.

D. 9 : 10.

14. **HKDSE MATH Core Sample Paper II Q14**
It is given that z varies directly as x and inversely as y. When $x = 3$ and $y = 4$, $z = 18$. When $x = 2$ and $z = 8$, $y =$

A. 1.

B. 3.

C. 6.

D. 9.

15. **HKDSE MATH Core Sample Paper II Q15**
The lengths of the three sides of a triangle are measured as 15 cm, 24 cm and 25 cm respectively. If the three measurements are correct to the nearest cm , find the percentage error in calculating the perimeter of the triangle correct to the nearest 0.1%.

A. 0.8%

B. 2.3%

C. 4.7%

D. 6.3%

16. **HKDSE MATH Core Sample Paper II Q16**
In the figure, O is the centre of the circle. C and D are points lying on the circle. OBC and BAD are straight lines. If $)C = 20$ cm and $OA = AB = 10$ cm, find the area of the shaded region BCD correct to the nearest cm^2.

A. 214 cm^2

B. 230 cm^2

C. 246 cm^2

D. 270 cm^2

17. **HKDSE MATH Core Sample Paper II Q17**

A.

B.

C.

D.

18. **HKDSE MATH Core Sample Paper II Q18**

A.

B.

C.

D.

19. **HKDSE MATH Core Sample Paper II Q19**

A.

B.

C.

D.

20. **HKDSE MATH Core Sample Paper II Q20**

A.

B.

C.

D.

21. **HKDSE MATH Core Sample Paper II Q21**

A.

B.

C.

D.

22. **HKDSE MATH Core Sample Paper II Q22**

A.

B.

C.

D.

23. **HKDSE MATH Core Sample Paper II Q23**

A.

B.

C.

D.

24. **HKDSE MATH Core Sample Paper II Q24**

A.

B.

C.

D.

25. **HKDSE MATH Core Sample Paper II Q25**

A.

B.

C.

D.

26. **HKDSE MATH Core Sample Paper II Q26**

A.

B.

C.

D.

27. **HKDSE MATH Core Sample Paper II Q27**

A.

B.

C.

D.

28. **HKDSE MATH Core Sample Paper II Q28**

A.

B.

C.

D.

29. **HKDSE MATH Core Sample Paper II Q29**

A.

B.

C.

D.

30. **HKDSE MATH Core Sample Paper II Q30**

A.

B.

C.

D.

31. **HKDSE MATH Core Sample Paper II Q31**

A.

B.

C.

D.

32. **HKDSE MATH Core Sample Paper II Q32**

A.

B.

C.

D.

33. **HKDSE MATH Core Sample Paper II Q33**

A.

B.

C.

D.

34. **HKDSE MATH Core Sample Paper II Q34**

A.

B.

C.

D.

35. **HKDSE MATH Core Sample Paper II Q35**

A.

B.

C.

D.

36. **HKDSE MATH Core Sample Paper II Q36**

A.

B.

C.

D.

37. **HKDSE MATH Core Sample Paper II Q37**

A.

B.

C.

D.

38. **HKDSE MATH Core Sample Paper II Q38**

A.

B.

C.

D.

39. **HKDSE MATH Core Sample Paper II Q39**

A.

B.

C.

D.

40. **HKDSE MATH Core Sample Paper II Q40**

A.

B.

C.

D.

41. **HKDSE MATH Core Sample Paper II Q41**

A.

B.

C.

D.

42. **HKDSE MATH Core Sample Paper II Q42**

A.

B.

C.

D.

43. **HKDSE MATH Core Sample Paper II Q43**

A.

B.

C.

D.

44. **HKDSE MATH Core Sample Paper II Q44**

A.

B.

C.

D.

45. **HKDSE MATH Core Sample Paper II Q45**

A.

B.

C.

D.