

2020年天津河西区高三一模数学试卷(答案)

一、选择题

1. A

2. A

3. B

4. D

5. C

6. D

7. D

8. B

9. B

二、填空题

10. 3

11. $\frac{7}{4}$

12. $\frac{\sqrt{2}}{3}\pi$

13. $2\sqrt{3}$

14. $\frac{7}{20}; 1$

15. $\frac{1}{3}; -\frac{49}{9}$

三、解答题

16. (1) $B = \frac{\pi}{4}$.
(2) 1 $\frac{\sqrt{2}}{3}$.
2 $\frac{4\sqrt{7} + 5\sqrt{2}}{18}$.

17. (1) 证明见解析.

(2) $\frac{\sqrt{6}}{10}$.

(3) $\frac{\sqrt{7}}{7}$.

18. (1) $\frac{x^2}{2} + \frac{y^2}{1} = 1$.

(2) 1 证明见解析.

2 $y = -\frac{2\sqrt{3}}{3}x + \sqrt{3}$.

19. (1) $a_n = 2^{n-1}$, $b_n = n$.

(2) $T_n = \frac{1}{2} - \frac{1}{2^n + 1}$.

(3) $\sum_{i=1}^{2^n} d_i = 2^{2n-1} + (4n-3) \cdot 2^{n-1} + 2$, $n \in \mathbb{N}^*$.

20. (1) $x + y + 1 = 0$.

(2) $\left[\frac{1}{2e^2}, +\infty \right)$.

(3) 证明见解析.