

文山市第三中学 2021 学年七年级期末模拟试卷
(数学参考答案)

一、选择题

1. D 2.C 3.D 4B 5.B 6.C 7.A 8.D

二、填空题

9. $-8x^3$ 10. 40° 11. $\frac{5}{12}$ 12. $y = 18 - \frac{1}{2}x$ 13. -3 14. $2^{2023} - 1$

三、解答题

15. 解：原式= $1-1+2+(-8)$ (4分)

$$=-6\text{.....(5分)}$$

解：原式= $(a^2 + 2ab + b^2 - a^2 + b^2) \div (2b)$

16.(2分)

$$=(2ab + 2b^2) \div (2b) \text{.....(3分)}$$

$$=a+b\text{.....(4分)}$$

把 $a = -\frac{1}{2}$, $b = -1$ 代入原式得：原式= $-\frac{3}{2}$

17. (1) 略(3分) (2) 7.5(3分)

18. 解：∵ $\angle C = 70^\circ$, $\angle A = 60^\circ$

$$\therefore \angle ABC = 50^\circ \text{.....(2分)}$$

∵ $\angle ABC$ 的角平分线交 AC 于点 D

$$\therefore \angle DBC = 25^\circ \text{.....(2分)}$$

∵ $DE \parallel BC$

$$\therefore \angle BDE = 25^\circ \text{.....(2分)}$$

19. 全等.....(1分)

理由: $\because AF=DC$

$\therefore AC=DF$(1分)

在 $\triangle ABC$ 和 $\triangle DEF$ 中

$$\begin{cases} AB = DE \\ AC = DF \end{cases} \angle A = \angle D \dots\dots (4 \text{分})$$

$\therefore \triangle ABC \cong \triangle DEF$ (1分)

20. (1) $\frac{2}{3}$ (2分)

21. (2) $\frac{5}{6}; \frac{1}{3}$ (4分)

22. (1) 上表反映了弹簧的长度与所挂物体的质量之间的关系, 其中所挂物体质量是自变量, 弹簧长度是因变量..... (3分)

(2) $y = 18 + 2x$ (2分)

(3) $x = 9$ (1分)

$$\begin{aligned} & (3a + b)(2a + b) - (a + b)^2 \\ & = 6a^2 + 3ab + 2ab + b^2 - a^2 - 2ab - b^2 \end{aligned}$$

23. (1) 绿化部分的面积是: $= 5a^2 + 3ab$ (5分)

(2) 当 $a=3, b=2$ 时, 绿化部分的面积是: 原式=63 (2分)

24. (1) 互余 (1分)

(2) $DE=CE+BD$, 理由如下:

$\because BD \perp l$ 于点 $D, CE \perp l$ 于点 E

$\therefore \angle BDA = \angle AEC = 90^\circ$

$\therefore \angle 1 + \angle ABD = 90^\circ$

$$\because \angle 1 + \angle 2 = 90^\circ$$

$$\therefore \angle 2 = \angle ABD$$

$$\because \angle BDA = \angle AEC = 90^\circ, \angle 2 = \angle ABD, AB = AC$$

$$\therefore \triangle ABD \cong \triangle CAE$$

$$\therefore BD = AE, CE = AD$$

$$\therefore DE = AD + AE = CE + BD \dots \dots \dots (6 \text{ 分})$$

(3) $AB = EM + FN$, 理由如下: 过点 C 作 $CH \perp AB$ 于 H

$\because \triangle AEC$ 是等腰直角三角形

$$\therefore AE = AC, \angle EAC = 90^\circ$$

$$\because \angle EAM + \angle CAH = 90^\circ, \angle ACH + \angle CAH = 90^\circ$$

$$\therefore \angle EAM = \angle CAH$$

$$\because AE = AC$$

$$\angle EMA = \angle AHC = 90^\circ$$

$$\therefore \angle EAM = \angle CAH, \angle EMA = \angle AHC = 90^\circ, AE = AC$$

$$\therefore \triangle AEM \cong \triangle CAH$$

$$\therefore EM = AH, AM = CH$$

同理可得: $BH = FN, CH = BN$

$$\therefore AB = AH + BH = EM + FN \dots \dots \dots (10 \text{ 分})$$