

九年级数学试题参考答案

1-5 BCCBA 6-8 CBB

9. $\sqrt{42}$ 10. 12 11. 8 12. $\frac{7}{16}$ 13. 4 14. $-1 < a \leq -\frac{1}{4}$

15. (1) 原式 $= 3\sqrt{3} - 2 \times \frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{3} - 2$

$$= \frac{7}{3}\sqrt{3} - 2$$

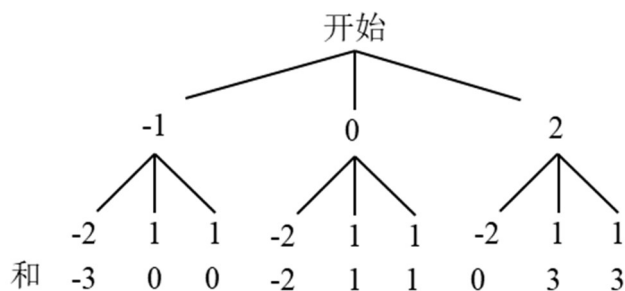
(2) 解: $3(x-3)^2 - 3(x-3) = 0$

$$(x-3)(x-6) = 0$$

$$\therefore x-3=0 \text{ 或 } x-6=0$$

$$x_1=3, x_2=6$$

16. 解: 画树状图如下:



从图中可知: 共有 9 种等可能结果数, 其中和为正数的有 4 种,

$$\therefore P(\text{摸出的两个小球的数字之和是正数}) = \frac{4}{9}.$$

17. (1) 连接 OD , 设 $\angle B = \angle CDA = \alpha$,

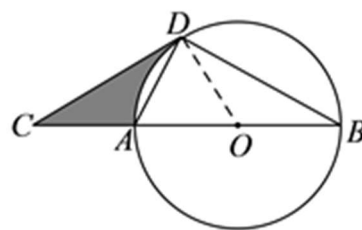
$$\because OD = OB,$$

$$\therefore \angle ODB = \angle B = \alpha, \quad \angle DOA = 2\angle B = 2\alpha,$$

$$\because OA = OD,$$

$$\therefore \text{在 } \triangle OAD \text{ 中, } \angle ADO = \frac{1}{2}(180^\circ - \angle DOA) = 90^\circ - \alpha,$$

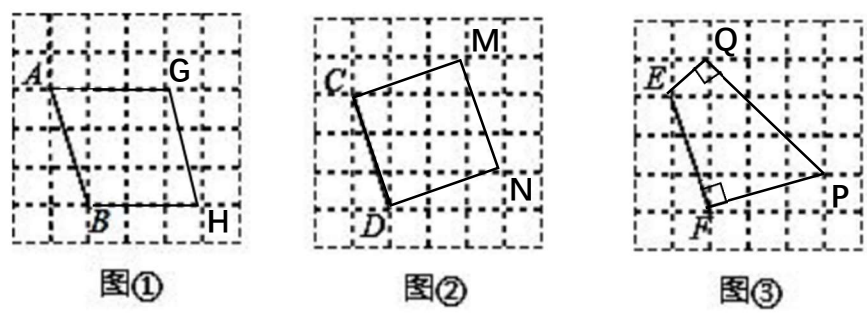
$$\therefore \angle CDO = \angle CDA + \angle ADO = \alpha + 90^\circ - \alpha = 90^\circ,$$



$\therefore OD \perp CD$ ，即 CD 与 $\odot O$ 相切.

(2) $\frac{\sqrt{3}}{2} - \frac{\pi}{6}$

18.



19. (1) $(36 - 2x)$

(2) 依题意得: $x(36 - 2x) = 160$,

化简得: $x^2 - 18x + 80 = 0$,

解得: $x_1 = 8$, $x_2 = 10$.

当 $x = 8$ 时, $36 - 2x = 36 - 2 \times 8 = 20 > 18$, 不合题意, 舍去;

当 $x = 10$ 时, $36 - 2x = 36 - 2 \times 10 = 16 < 18$, 符合题意.

故 AD 的长为 10 米.

20. (1) 证明: \because 四边形 $ABCD$ 是平行四边形

$\therefore AD = BC, AE \parallel FC$

$\because ED = BF$

$AD - ED = BC - BF$, 即 $AE = FC$.

\therefore 四边形 $AFCE$ 是平行四边形.

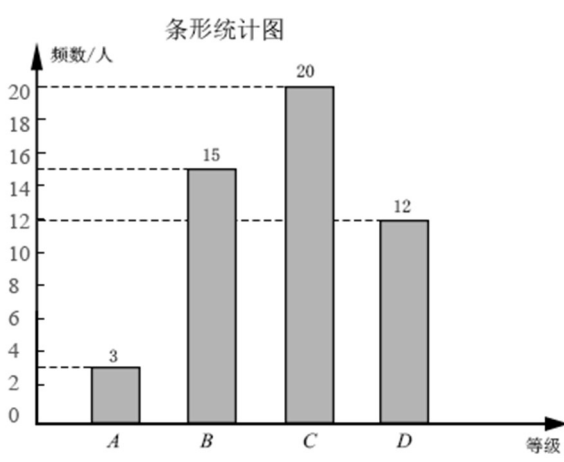
(2) 24

21. (1) 86.4

(2) 见右图

(3) C

(4) 解: $450 \times \frac{3}{50} = 27$ (人),



∴估计足球运球测试成绩达到 A 级的学生约有 27 人.

22. 【解决问题】(1)

证明: ∵将 $\triangle ABC$ 沿 AC 折叠得 $\triangle AEC$

$$\therefore \angle ACB = \angle ACH$$

∵在平行四边形 $ABCD$ 中

$$AD \parallel BC, AD = BC$$

$$\therefore \angle DAC = \angle ACB$$

$$\therefore \angle ACB = \angle ACH = \angle DAC$$

$$\therefore AH = HC$$

$$\text{又} \because AD = BC, BC = CE$$

$$\therefore AD = CE$$

$$\therefore AD - AH = CE - CH$$

$$\therefore EH = DH$$

$$\therefore \angle DEH = \angle EDH$$

$$\therefore \angle EHD = \angle AHC$$

$$\therefore \angle HAC = \angle ADE$$

$$\therefore DE \parallel AC$$

【问题应用】 $2\sqrt{3}$

【问题拓展】(1) $2\sqrt{3}+2$ (2) $2\sqrt{3}-1$

23. (1) 3

(2) ∵点 P 落在 BC 上, 且 $PD \parallel BC$

$$\therefore \triangle APD \sim \triangle ABC$$

$$\therefore AP = AD$$

∵点 D 是 AC 的中点, 且 $AC = 10$

$$\therefore AD = \frac{1}{2} AC = \frac{1}{2} \times 10 = 5$$

$$\therefore 5t = 5$$

解得 $t = 1$

$$(3) S = \begin{cases} 15t & (0 < t \leq 1) \\ -\frac{15}{2}t^2 + \frac{45}{2}t & (1 < t \leq 2) \end{cases}$$

$$(4) t=1 \text{ 或 } t=\frac{1}{2}$$

24. (1) $\because y = -x^2 + bx + c$ 的顶点坐标为 (2,1)

$$\therefore -2^2 + 2b + c = 1$$

$$\text{又} \because -\frac{b}{2a} = 2, a = -1$$

$$\therefore b = 4$$

$$\therefore -2^2 + 2 \times 4 + c = 1$$

解得 $c = -3$

$$\therefore b = 4, c = -3$$

$$(2) A_1(2,1), A_2(2 + \sqrt{2}, -1), A_3(2 - \sqrt{2}, -1)$$

$$(3) 2 \leq m \leq 4$$

$$(4) m < 1 \text{ 或 } \frac{5-\sqrt{5}}{2} < m \leq 3$$