

第 33 期

1 版

专项训练(十)

一、选择题

1.A 2.B 3.C 4.A 5.B 6.B

二、填空题

7.  $2\sqrt{5}$  8.  $\sqrt{17}$  9.  $45^\circ$

10. 4.8 11. 20 12. 3 或  $2\sqrt{3}$

三、

13. 解:  $\because AB=AC, AD$  是  $\triangle ABC$  的角平分线,

$\therefore AD \perp BC, BD=CD$ .

在  $\text{Rt}\triangle ABD$  中,  $\angle ADB=90^\circ, AB=13, AD=12$ .

根据勾股定理, 得  $BD = \sqrt{AB^2 - AD^2} = \sqrt{13^2 - 12^2} = 5(\text{cm})$ .

$\therefore BC=10\text{cm}$ .

14. 解: (1) 5, 20.

(2)  $\triangle ABC$  是直角三角形.

证明:  $BC=BD+CD=5$ .

$\therefore 5+20=5^2$ , 即  $AC^2+AB^2=BC^2$ ,

$\therefore \angle BAC=90^\circ$ .

$\therefore \triangle ABC$  是直角三角形.

15. 解:  $\because \angle A$  为直角,  $AD=12, AB=16$ , 根据勾股定理, 得  $BD = \sqrt{AB^2 + AD^2} = \sqrt{16^2 + 12^2} = \sqrt{400} = 20$ .

$\therefore BD^2 + CD^2 = 20^2 + 15^2 = 625 = BC^2$ ,

$\therefore \triangle BDC$  是直角三角形, 且  $\angle CDB$  为直角.

$\therefore S_{\triangle ABD} = \frac{1}{2} \times 16 \times 12 = 96, S_{\triangle BDC} = \frac{1}{2} \times 20 \times 15 = 150$ .

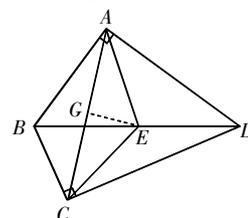
$\therefore$  四边形  $ABCD$  的面积为  $96+150=246$ .

16. 解: (1) 证明:  $\because \angle BAD = \angle BCD = 90^\circ, E$  为对角线  $BD$  的中点,

$\therefore AE = \frac{1}{2}BD, CE = \frac{1}{2}BD$ .

$\therefore AE = CE$ .

(2) 如图, 过点  $E$  作  $EG \perp AC$ .



(第 16 题图)

由(1)知,  $AE = CE = \frac{1}{2}BD, BD=10$ ,

$\therefore AE = CE = 5$ .

又  $\because EG \perp AC, \therefore AG = CG = \frac{1}{2}AC$ .

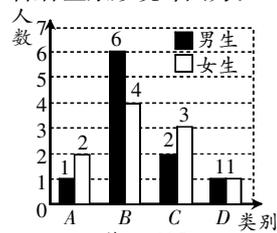
又  $\because AC=8, \therefore AG = CG=4$ .

在  $\text{Rt}\triangle AGE$  中,  $AE=5, AG=4$ , 则由勾股定理知

能的结果, 摸出的两张卡片中的词语能组成“团结奋斗”的结果有 2 个,  $\therefore$  摸出的两张卡片中的词语能组成“团结奋斗”的概率是  $\frac{2}{12} = \frac{1}{6}$ .

15. 解: (1) 本次调查的学生数  $= (6+4) \div 50\% = 20$  (名).

(2)  $C$  类学生数  $= 20 \times 25\% = 5$  (名), 则  $C$  类女生数  $= 5 - 2 = 3$  (名);  $D$  类学生数  $= 20 - 3 - 10 - 5 = 2$  (名), 则  $D$  类男生有 1 名. 补全条形统计图为:



(第 15 题图)

(3) 画树状图:



(第 15 题图)

共有 6 种等可能的结果, 其中恰好是一位男同学和一位女同学的结果有 3 种,  $\therefore$  所选同学中恰好是一位男同学和一位女同学的概率为  $\frac{1}{2}$ .

第 36 期

1~2 版

阶段性达标测试(三)

一、选择题

1~5. ABBCC 6~10. CCBBD

二、填空题

11. 5 12.  $\frac{1}{2}$  13.  $3\sqrt{5}$

14. 3 15.  $\frac{2}{3}$  16.  $78^\circ$

17.  $13\pi - 36$  18.  $\frac{5}{2}$  或  $\frac{7}{4}$

三、解答题

19. 解: 原式  $= 2 \times \frac{\sqrt{3}}{2} + \sqrt{2} \times \frac{\sqrt{2}}{2} - 3 - 1 = \sqrt{3} - 3$ .

20. 解: (1) 证明:  $\because AB=12, AE=14, BD=6, BC=24$ ,

$\therefore \frac{BD}{BA} = \frac{6}{12} = \frac{1}{2}, \frac{BA}{BC} = \frac{12}{24} = \frac{1}{2}$ .

$\therefore \frac{BD}{BA} = \frac{BA}{BC}$ .

又  $\because \angle B = \angle B$ ,

$\therefore \triangle ABD \sim \triangle CBA$ .

(2)  $\because \triangle ABD \sim \triangle CBA$ ,

$\therefore \angle BAD = \angle C$ .

$\therefore \angle BAE = \angle DAC$ ,

$\therefore \angle BAD = \angle CAE$ .

$\therefore \angle C = \angle CAE$ .

$\therefore CE = AE = 14$ .

$\therefore DE = BC - BD - CE = 24 - 6 - 14 = 4$ .

21. 解: (1) 16, 22.

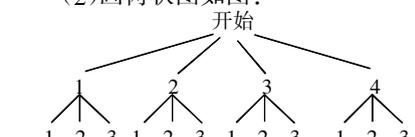
(2) 2, 2.

(3) 该校学生在一周内借阅图书“4 次及以上”的人数有  $3000 \times \frac{8}{50} = 480$  (人).

22. 解: (1)  $\because$  在 7 张卡片中共有两张卡片中有数字 1,

$\therefore$  从中任意抽取一张卡片, 从中任意抽取一张卡片, 卡片上写有数字 1 的概率为  $\frac{2}{7}$ .

(2) 画树状图如图:

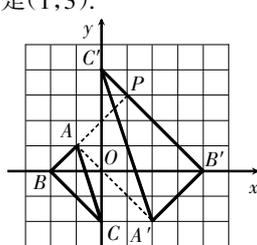


共有 12 个等可能的结果, 两位数不大于 32 的结果有 8 个,

$\therefore$  两位数不大于 32 的概率为  $\frac{8}{12} = \frac{2}{3}$ .

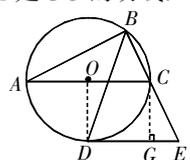
23. 解: (1) 如图所示: 点  $A'(2, -2), B'(4, 0), C'(0, 4)$ .

(2) 四边形  $AA'B'P$  是矩形, 点  $P$  的坐标是  $(1, 3)$ .



(第 23 题图)

24. 解: (1) 证明: 连接  $OD$ .  $\because AC$  是  $\odot O$  的直径,  $\therefore \angle ABC = 90^\circ$ .  $\because BD$  平分  $\angle ABC, \therefore \angle ABD = 45^\circ$ .  $\therefore \angle AOD = 90^\circ$ .  $\because DE \parallel AC, \therefore \angle ODE = \angle AOD = 90^\circ$ .  $\therefore DE$  是  $\odot O$  的切线.



(第 24 题图)

(2) 在  $\text{Rt}\triangle ABC$  中,  $AB=4\sqrt{5}, BC=2\sqrt{5}$ ,

$\therefore AC = \sqrt{AB^2 + BC^2} = 10$ .

$\therefore OD = 5$ .

过点  $C$  作  $CG \perp DE$ , 垂足为  $G$ , 则四边形  $ODGC$  为正方形.

$\therefore DG = CG = OD = 5$ .

$\because DE \parallel AC$ ,

$\therefore \angle CEG = \angle ACB$ .

$\therefore \tan \angle CEG = \tan \angle ACB$ .

$\therefore \frac{CG}{GE} = \frac{AB}{BC}$ ,

即  $\frac{5}{GE} = \frac{4\sqrt{5}}{2\sqrt{5}}$ .

解得  $GE = 2.5$ .

$\therefore DE = DG + GE = \frac{15}{2}$ .

25. 解: 作  $DH \perp AB$  于点  $H$ .

则有  $\angle ADH = 37^\circ, \angle AFH = 45^\circ$ ,

$DF = EG = 6.43$  米,  $DE = FG = HB$ .

设王林同学的身高为  $x$  米, 则  $HB = x$  米.

$\therefore AH = (21 - x)$  米.

在  $\text{Rt}\triangle AFH$  中,  $\because \angle AFH = 45^\circ$ ,

$\therefore HF = AH = (21 - x)$  米.

$\therefore DH = 21 - x + 6.43 = (27.43 - x)$  米.

在  $\text{Rt}\triangle ADH$  中,

$\tan 37^\circ = \frac{AH}{DH} = \frac{21 - x}{27.43 - x} \approx 0.75$ ,

解得  $x \approx 1.71 \approx 1.7$ .

答: 王林同学的身高约为 1.7 米.

26. 解: (1) 证明:  $\because \angle CAD = \angle B, \angle C = \angle C$ ,

$\therefore \triangle CAD \sim \triangle CBA$ .

$\therefore \frac{CA}{CB} = \frac{CD}{CA}$ .

$\therefore CA^2 = CD \cdot CB$ .

(2)  $\because$  四边形  $ABCD$  是平行四边形,

$\therefore AD = BC, \angle B = \angle D$ .

$\therefore \angle CQP = \angle D$ ,

$\therefore \angle CQP = \angle B$ .

$\therefore \angle PCQ = \angle QCB$ ,

$\therefore \triangle PCQ \sim \triangle QCB, \therefore \frac{CP}{CQ} = \frac{CQ}{CB}$ .

$\therefore CQ^2 = CP \cdot CB$ .

$\therefore CB = \frac{CQ^2}{CP} = \frac{6^2}{3} = 12$ .

$\therefore AD = 12$ .

(3) 延长  $PQ, AD$  相交于点  $E$ .

$\therefore$  四边形  $ABCD$  是菱形,

$\therefore \angle ADB = \frac{1}{2} \angle ADC = \frac{1}{2} \angle ABC$ .

$\therefore \angle ABC = 2 \angle PAQ$ ,

$\therefore \angle PAQ = \angle ADB$ .

$\therefore PQ \parallel BD$ ,

$\therefore \angle ADB = \angle E$ .

$\therefore \angle PAQ = \angle E$ .

$\therefore \angle APQ = \angle EPA$ ,

$\therefore \triangle APQ \sim \triangle EPA$ .

$\therefore \frac{AP}{PE} = \frac{AQ}{AE} = \frac{PQ}{AP}$ .

$\therefore AP^2 = PE \cdot PQ$ .

$\therefore$  四边形  $ABCD$  是菱形,

$\therefore AD \parallel BC$ .

$\therefore BD \parallel PQ$ ,

$\therefore$  四边形  $BDEP$  是平行四边形.

$\therefore DE = BP = 1, PE = BD$ .

$\therefore BD = 2PQ, \therefore PE = 2PQ$ .

$\therefore AP^2 = 2PQ^2$ .

$\therefore AP = \sqrt{2}PQ$ .

$\therefore \frac{AQ}{AE} = \frac{PQ}{\sqrt{2}PQ} = \frac{1}{\sqrt{2}}$ .

$\therefore AE = \sqrt{2}AQ = \sqrt{2} \times 3\sqrt{2} = 6$ .

$\therefore AD = AE - DE = 6 - 1 = 5$ .

$\therefore$  菱形  $ABCD$  的边长为 5.

$\therefore CG = 6$ .

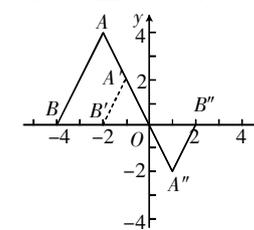
$\therefore BG = BC + CG = 4 + 6 = 10$ .

考场练兵 5 50

考场练兵 6

1.A

2. 解: 如图所示:  $\triangle A'B'O$  或  $\triangle A''B''O$  即为所求. 点  $A$  的对应点  $A'$  的坐标为  $(-1, 2), A''$  的坐标为  $(1, -2)$ .



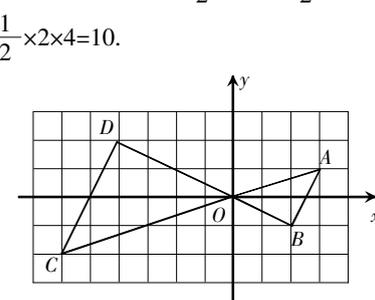
(第 2 题图)

考场练兵 7

解: (1) 如图,  $\triangle OCD$  即为所求.

(2)  $C(-6, -2), D(-4, 2)$ .

(3)  $S_{\triangle OCD} = 24 - \frac{1}{2} \times 4 \times 2 - \frac{1}{2} \times 6 \times 2 - \frac{1}{2} \times 2 \times 4 = 10$ .



4 版

专项训练(十一)

一、选择题

1.C 2.D 3.A 4.C 5.A 6.D

二、填空题

7. 1.20 8. 1:4

9. 答案不唯一, 如  $\angle D = \angle B$ .

10. 16 11.  $\frac{4}{7}$  12. 1 或  $\frac{5}{2}$

三、解答题

13. 证明: 在  $\triangle ABC$  中,  $\because AB = AC, BD = CD, \therefore AD \perp BC$ .

$\therefore CE \perp AB, \therefore \angle ADB = \angle CEB = 90^\circ$ .

又  $\because \angle B = \angle B$ ,

$\therefore \triangle ABD \sim \triangle CBE$ .

14. 解:  $\because DE \perp AB$ ,

$\therefore \angle BED = 90^\circ$ .

又  $\angle C = 90^\circ, \therefore \angle BED = \angle C$ .

又  $\angle B = \angle B, \therefore \triangle BED \sim \triangle BCA$ .

$\therefore \frac{BD}{AB} = \frac{DE}{AC}$ .

$\therefore DE = \frac{BD \cdot AC}{AB} = \frac{8 \times 7}{14} = 4$ .

15. 解: (1) 如图,  $\triangle DEF$  和  $\triangle D'E'F'$  为所作.

$EG = \sqrt{AE^2 - AG^2} = 3$ .

$\therefore S_{\triangle ACE} = \frac{1}{2} AC \cdot EG = 12$ .

2~3 版

相似·复习直通车

考场练兵 1 B

考场练兵 2

1.C

2. 解:  $\because$  四边形  $ABDE$  为矩形,  $AB = 3\text{cm}, BD = 7\text{cm}, EC = 1$ ,

$\therefore DC = DE - CE = BA - CE = 2\text{cm}, BD = AE = 7\text{cm}$ .

设  $DP = x\text{cm}$ , 则  $BP = (7 - x)\text{cm}$ .

$\because \angle B = \angle D = 90^\circ$ ,

$\therefore$  存在两种情况.

① 当  $\triangle CDP \sim \triangle ABP$  时,

$\frac{DP}{DC} = \frac{BP}{BA}$ , 即  $\frac{x}{2} = \frac{7 - x}{3}$ .

$\therefore x = \frac{14}{5}$ .

② 当  $\triangle PDC \sim \triangle ABP$  时,

$\frac{DP}{DC} = \frac{BA}{BP}$ , 即  $\frac{x}{2} = \frac{3}{7 - x}$ .

整理, 得  $x^2 - 7x + 6 = 0$ .

解得  $x_1 = 1, x_2 = 6$ .

$\therefore$  当以  $P, C, D$  为顶点的三角形与  $\triangle ABP$  相似时,  $PD$  的长为  $\frac{14}{5}\text{cm}$  或  $1\text{cm}$  或  $6\text{cm}$ .

考场练兵 3

1.C

2. 证明: (1)  $\because AD \perp BC$ ,

$\therefore \angle ADB = 90^\circ$ .

$\because \angle BAC = 90^\circ, \therefore \angle BAC = \angle ADB$ .

$\therefore \angle ABD = \angle CBA$ ,

$\therefore \triangle BAD \sim \triangle BCA$ .

(2) 由(1)知  $\angle BAE = \angle C$ .

$\because OF \perp OB, \therefore \angle BOA + \angle COF = 90^\circ$ .

$\therefore \angle BOA + \angle ABE = 90^\circ$ ,

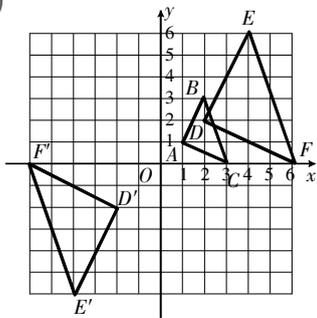
$\therefore \angle ABE = \angle COF$ .

$\therefore \triangle ABE \sim \triangle COF$ .

考场练兵 4

1.B

2. 解: (1) 证明:  $\because$  四边形  $ABCD$  为正方形,  $\therefore \angle A = \angle D = 90^\circ, AB = BC = CD = AD, AD \parallel BC$ .



(第 15 题图)

(2)  $(2a, 2b)$  或  $(-2a, -2b)$ .

16. 证明: (1)  $\because BF, CE$  分别是  $\triangle ABC$  的边  $AC, AB$  上的高,

$\therefore BF \perp AC, CE \perp AB$ .

$\therefore \angle AFB = \angle AEC = 90^\circ$ .

又  $\because \angle CAE = \angle BAF$ ,

$\therefore \triangle ABF \sim \triangle ACE$ .

(2)  $\because \triangle ABF \sim \triangle ACE$ ,

$\therefore \frac{AE}{AC} = \frac{AF}{AB}$ .

又  $\because \angle EAF = \angle CAB$ ,

$\therefore \triangle EAF \sim \triangle CAB$ .

$\therefore \frac{EF}{BC} = \frac{AE}{AC}$  ①

$\angle AEF = \angle ACB$ .

$\therefore AN$  是  $\angle BAC$  的平分线,

$\therefore \angle EAM = \angle CAN$ .

$\therefore \triangle EAM \sim \triangle CAN$ .

$\therefore \frac{AM}{AN} = \frac{AE}{AC}$  ②

由①②可得:  $\frac{EF}{BC} = \frac{AM}{AN}$ .

第 34 期

1 版

锐角三角函数·复习直通车

考场练兵 1 D

考场练兵 2

1. 解: 原式  $= 2 \times \left( \frac{\sqrt{2}}{2} \right)^2 + \sqrt{3} \times$

$\frac{\sqrt{3}}{3} - \frac{1}{2} = 1 + 1 - \frac{1}{2} = \frac{3}{2}$ .

2. 解: 原式  $= 2 \times \frac{\sqrt{2}}{2} - \frac{3}{2} \times \frac{\sqrt{3}}{3} \times$

$\frac{\sqrt{3}}{2} + \left( \frac{\sqrt{3}}{2} \right)^2 = \sqrt{2} - \frac{3}{4} + \frac{3}{4} = \sqrt{2}$ .

考场练兵 3

解: (1)  $\because AD$  是  $BC$  边上的高,

$\therefore \angle D = 90^\circ$ .

在  $\text{Rt}\triangle ABD$  中,

$\therefore \sin B = \frac{4}{5}$ .

$\therefore \frac{AD}{AB} = \frac{4}{5}$ .

又  $\because AD = 12$ ,

$\therefore AB = 15$ .

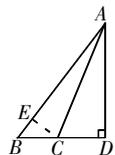
$\therefore BD = \sqrt{AB^2 - AD^2} = 9$ .

又  $\because BC = 4$ ,

$\therefore CD = BD - BC = 9 - 4 = 5$ .

答: 线段  $CD$  的长为 5.

(2) 如图, 过点  $C$  作  $CE \perp AB$ , 垂足为  $E$ .



$\therefore S_{\triangle ABC} = \frac{1}{2} BC \cdot AD = \frac{1}{2} AB \cdot CE$ ,

$\therefore \frac{1}{2} \times 4 \times 12 = \frac{1}{2} \times 15 \times CE$ .

$\therefore CE = \frac{16}{5}$ .

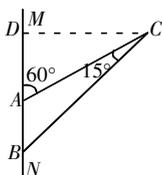
在  $\text{Rt}\triangle AEC$  中,

$\sin \angle BAC = \frac{CE}{AC} = \frac{\frac{16}{5}}{\sqrt{5^2 + 12^2}} = \frac{16}{65}$ .

答:  $\sin \angle BAC$  的值为  $\frac{16}{65}$ .

考场练兵 4

解: 如图, 过  $C$  作  $CD \perp MN$  于  $D$ , 则  $\angle CDB = 90^\circ$ .



$\therefore \angle CAD = 60^\circ, AC = 40\text{cm}$ ,

$\therefore CD = AC \cdot \sin \angle CAD = 40 \times \sin 60^\circ = 40 \times \frac{\sqrt{3}}{2} = 20\sqrt{3} (\text{cm})$ .

$\therefore \angle ACB = 15^\circ$ ,

$\therefore \angle CBD = \angle CAD - \angle ACB = 45^\circ$ .

$\therefore BC = \sqrt{2} CD = 20\sqrt{6} \approx 49 (\text{cm})$ .

答: 支架  $BC$  的长约为 49cm.

2 版

专项训练(十二)

一、选择题

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

二、填空题

7.  $\frac{12}{5}$  8.  $\frac{1}{2}$  9.  $75^\circ$  10. 14

11. 30 12. 1 或  $\frac{5}{4}$

三、解答题

13. 解:  $\sin 30^\circ + 2 \cos 60^\circ \times \tan 60^\circ - \sin^2 45^\circ = \frac{1}{2} + 2 \times \frac{1}{2} \times \sqrt{3} - \left( \frac{\sqrt{2}}{2} \right)^2 = \sqrt{3} - \frac{1}{2}$ .

14. 解: 过点  $A$  作  $AD \perp l$ . 设  $AD = x\text{m}$ .

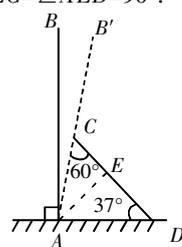
$\therefore BD = \frac{AD}{\tan 30^\circ} = \sqrt{3}x$ .

$\therefore \tan 60^\circ = \frac{x}{\sqrt{3}x - 24} = \sqrt{3}$ .

$\therefore AD = x = 12\sqrt{3}$ .

$\therefore$  气球  $A$  离地面的高度为  $12\sqrt{3}\text{m}$ .

15. 解: 过点  $A$  作  $AE \perp CD$  于  $E$ , 则  $\angle AEC = \angle AED = 90^\circ$ .



(第 15 题图)

$\therefore$  在  $\text{Rt}\triangle AED$  中,  $\angle ADC = 37^\circ$ ,

$\cos 37^\circ = \frac{DE}{AD} = \frac{DE}{5} \approx 0.8$ .

$\therefore DE = 4$ .

$\therefore \sin 37^\circ = \frac{AE}{AD} = \frac{AE}{5} \approx 0.6$ .

$\therefore AE = 3$ .

在  $\text{Rt}\triangle AEC$  中,

$\therefore \angle CAE = 90^\circ - \angle ACE = 90^\circ - 60^\circ = 30^\circ$ ,

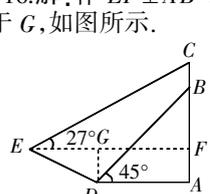
$\therefore CE = \frac{\sqrt{3}}{3} AE = \sqrt{3}$ .

$\therefore AC = 2CE = 2\sqrt{3}$ .

$\therefore AB = AC + CE + ED = 2\sqrt{3} + \sqrt{3} + 4 = 3\sqrt{3} + 4 \approx 9.2 (\text{米})$ .

答: 这棵大树  $AB$  原来的高度约是 9.2 米.

16. 解: 作  $EF \perp AB$  于  $F$ , 作  $DG \perp EF$  于  $G$ , 如图所示.



(第 16 题图)

则  $GF = AD = 30\text{m}, AF = DG, \angle CEF = 27^\circ$ .

$\therefore$  山坡  $DE$  的坡度  $i = 1:2.4$ ,

$\therefore EG = 2.4DG$ .

$\therefore DE = 26\text{m}, DG^2 + EG^2 = DE^2$ ,

$\therefore AF = DG = 10\text{m}, EG = 24\text{m}$ .

$\therefore EF = EG + GF = 54 (\text{m})$ .

在  $\text{Rt}\triangle CEF$  中,  $\tan \angle CEF = \frac{CF}{EF} =$

$\tan 27^\circ \approx 0.51$ ,

$\therefore CF \approx 0.51 \times 54 = 27.54 (\text{m})$ .

$\therefore AC = AF + CF = 10 + 27.54 = 37.54 (\text{m})$ .

又  $\because \angle ADB = 45^\circ, \angle A = 90^\circ$ ,

$\therefore \triangle ABD$  是等腰直角三角形.

$\therefore AB = AD = 30\text{m}$ .

$\therefore BC = AC - AB = 37.54 - 30 \approx 7.5 (\text{m})$ .

答: 广告牌  $BC$  的高度约为 7.5m.

3~4 版

圆·复习直通车

考场练兵 1 C

考场练兵 2 30°

考场练兵 3 B

考场练兵 4 A

数学

考场练兵 5 B

考场练兵 6

证明: (1)  $\because$  四边形  $ACBE$  是圆内接四边形,  $\therefore \angle EAM = \angle EBC$ .

$\therefore AE$  平分  $\angle BAM$ ,

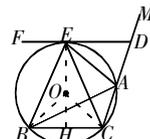
$\therefore \angle BAE = \angle EAM$ .

$\therefore \angle BAE = \angle BCE$ ,

$\therefore \angle BCE = \angle EAM$ .

$\therefore \angle BCE = \angle EBC, \therefore BE = CE$ .

(2) 如图, 连接  $EO$  并延长交  $BC$  于  $H$ , 连接  $OB, OC$ .



$\therefore OB = OC, EB = EC$ ,

$\therefore$  直线  $EO$  垂直平分  $BC$ .

$\therefore EH \perp BC, \therefore EH \perp EF$ .

$\therefore OE$  是  $\odot O$  的半径,

$\therefore EF$  为  $\odot O$  的切线.

考场练兵 7 D

第 35 期

1 版

专项训练(十三)

一、选择题

1.C 2.C 3.B 4.B 5.B 6.B

二、填空题

7.  $\sqrt{34}$  8.  $120^\circ$  9.  $4\sqrt{3}$

10.  $20\text{cm}$  11.  $9\sqrt{3} - 3\pi$

12. 2.5 或  $4 - 2\sqrt{3}$

三、解答题

13. 解: (1) 证明:  $\because$  四边形  $ABCD$  内接于  $\odot O$ ,

$\therefore \angle DCB + \angle BAD = 180^\circ$ .

$\therefore \angle BAD = 105^\circ$ ,

$\therefore \angle DCB = 180^\circ - 105^\circ = 75^\circ$ .

$\therefore \angle DBC = 75^\circ$ ,

$\therefore \angle DCB = \angle DBC = 75^\circ$ .

$\therefore BD = CD, \therefore \widehat{BD} = \widehat{CD}$ .

(2)  $\because \angle DCB = \angle DBC = 75^\circ$ ,

$\therefore \angle BDC = 30^\circ$ .

由圆周角定理, 得  $\widehat{BC}$  的度数为  $60^\circ$ .

故  $\widehat{BC}$  的长为  $\frac{60\pi \times 3}{180} = \pi$ .

14. 解: (1) 证明:  $\because OC = OB$ ,

$\therefore \angle OBC = \angle OCB$ .

$\therefore OC \parallel BD$ ,

$\therefore \angle OCB = \angle CBD$ .

$\therefore \angle OBC = \angle CBD$ .

$\therefore \widehat{AC} = \widehat{CD}$ .

(2) 连接  $AC$ .

$\therefore CE = 2, EB = 6$ ,

$\therefore BC = 8$ .

$\therefore \widehat{AC} = \widehat{CD}$ ,

$\therefore \angle CAD = \angle ABC$ .

$\therefore \angle ACB = \angle ACB$ ,

中考版答案页第 9 期

$\therefore \triangle ACE \sim \triangle BCA$ .

$\therefore \frac{AC}{CE} = \frac{CB}{AC}$ , 即  $\frac{AC}{2} = \frac{8}{AC}$ .

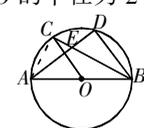
解得  $AC = 4$ .

$\therefore AB$  是直径,

$\therefore \angle ACB = 90^\circ$ .

$\therefore AB = \sqrt{AC^2 + BC^2} = 4\sqrt{5}$ .

$\therefore \odot O$  的半径为  $2\sqrt{5}$ .



(第 14 题图)

15. 解: (1) 证明: 连接  $OC$ ,

$\because AB$  是  $\odot O$  的直径,

$\therefore \angle ACB = 90^\circ$ .

$\therefore \angle A + \angle B = 90^\circ$ .

$\because OC = OB, \therefore \angle B = \angle OCB$ .

$\therefore \angle BCM = \angle A$ ,

$\therefore \angle OCB + \angle BCM = 90^\circ$ , 即  $OC \perp MN$ .

$\therefore MN$  是  $\odot O$  的切线.

(2)  $\because AB$  是  $\odot O$  的直径,  $\odot O$  的半径为 1.  $\therefore AB = 2$ .

$\therefore \cos \angle BAC = \cos \alpha = \frac{AC}{AB} = \frac{3}{4}$ ,

即  $\frac{AC}{2} = \frac{3}{4}$ .

$\therefore AC = \frac{3}{2}$ .

$\therefore \angle AFE = \angle ACE, \angle GFH = \angle AFE$ ,

$\therefore \angle GFH = \angle ACE$ .

$\therefore DH \perp MN$ ,

$\therefore \angle GFH + \angle AGC = 90^\circ$ .

$\therefore \angle ACE + \angle ECD = 90^\circ$ ,

$\therefore \angle ECD = \angle AGC$ .

又  $\because \angle DEC = \angle CAG$ ,

$\therefore \triangle EDC \sim \triangle AGC$ .

$\therefore \frac{ED}{AC} = \frac{EC}{AG}$ .

$\therefore AG \cdot DE = AC \cdot CE = \frac{3}{2} \times \frac{5}{3} = \frac{5}{2}$ .

2~3 版

统计与概率·复习直通车

统计

考场练兵 1 D

考场练兵 2

解: (1) 8.

(2) 不一定.

(3) 样本中成绩不低于 75 分的:  $70 \leq x < 80$  范围内有 8 人,  $80 \leq x < 90$  范围内有 15 人,  $90 \leq x < 100$  范围内有 8 人, 共  $8 + 15 + 8 = 31$  (人).

占样本的百分比为  $\frac{31}{50} \times 100\% = 62\%$ .

$500 \times 62\% = 310$  (人).

答: 估计该校七年级成绩不低于 75 分的人数为 310 人.

考场练兵 3 B

概率

考场练兵 1 1.B 2.D

考场练兵 2 1.C 2.A