

# 七年级数学(下册)测试卷参考答案

## 测试卷(一)

一、1.C 2.A 3.D 4.D 5.B 6.B 7.B

8.C

二、9. $9x^2$  10. $5x^2-10x$  11.9

12. $(2a-1)$  13.2 14.10

三、15.解:原式 $=16x^4y^2 \div 2x^2y \cdot (-3y)$   
 $=8x^2y \cdot (-3y)$   
 $=-24x^2y^2$

16.解:原式 $=-1+1-\frac{1}{2}+\frac{1}{2}=0$

17.解:原式 $=x^2+2xy+y^2-x^2+2xy-y^2=4xy$

当 $x=1, y=4$ 时

原式 $=4 \times 1 \times 4=16$

18.解:原式 $=(2xy-2y^2-x^2+2xy-y^2+x^2+2xy+y^2-2xy) \div 4y$   
 $=(4xy-2y^2) \div 4y$   
 $=x-\frac{y}{2}$

由 $y-2x=10$ ,得 $y=2x+10$ .

代入 $x-\frac{y}{2}$ ,得原式 $=-5$ .

四、19.解:(1) $\because a+b=10, ab=20, a^2+b^2=(a+b)^2-2ab$

$\therefore a^2+b^2=10^2-2 \times 20=100-40=60$

(2) $S_{\text{阴影}}=a^2+b^2-\frac{1}{2}a^2-\frac{1}{2}(a+b)b=60$   
 $-\frac{1}{2} \times 60-\frac{1}{2} \times 20=20$

## 测试卷(二)

一、1.C 2.B 3.D 4.B 5.B 6.B 7.C 8.D

二、9.相等 10. $25^\circ$

11.PN 12. $60^\circ$  13. $65^\circ$  14. $200^\circ$

三、15.解: $\because \angle A=\angle D, \therefore AB \parallel CD$ .

$\therefore \angle B=\angle C$ .

$\because \angle B=42^\circ, \therefore \angle C=42^\circ$ .

16.把下列每步推理的依据填在每步后面的括号里.

如图,已知 $DF \parallel AB, DE \parallel AC$ .

因为 $DF \parallel AB$ (已知),

所以 $\angle FDE=\angle BED$ (两直线平行,内错角相等),

因为 $DE \parallel AC$ (已知),

所以 $\angle BED=\angle A$ (两直线平行,同位角相等),

所以 $\angle FDE=\angle A$ (等量代换);

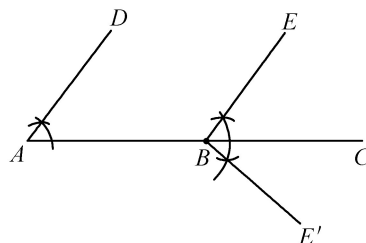
17.解:平行.理由如下:

$\because \angle 2=\angle 4, \therefore a \parallel b$ .

$\because \angle 1+\angle 3=180^\circ, \therefore a \parallel c$ .

$\therefore b \parallel c$ .

四、18.(1)如图所示: $\angle EBC=\angle A=\angle E'BC$ ;



(2)①当 $EB$ 在 $AC$ 上方时, $EB \parallel AD$ ,理由:同位角相等,两直线平行;②当 $E'B$ 在 $AC$ 下方时, $EB$ 与 $AD$ 不平行.

19.解:(1)因为 $AB \parallel CD$ ,

所以 $\angle EHD=\angle 1=50^\circ$ .

所以 $\angle 2=\angle EHD=50^\circ$ .

(2)因为 $GM \perp EF, HN \perp EF$ ,

所以 $\angle MGH=\angle NHF=90^\circ$ .

所以 $HN \parallel GM$ .

(3)因为 $HN \perp EF$ ,所以 $\angle NHF=90^\circ$ .

所以 $\angle NHC=\angle NHF-\angle 2=90^\circ-50^\circ=40^\circ$ .

因为 $AB \parallel CD$ ,

所以 $\angle HNG=\angle NHC=40^\circ$ .

## 测试卷(三)

一、1.C 2.D 3.B 4.C 5.C 6.A

二、7.3 8.4 9.2 10. $y=5x$

三、11.解:(1)甲印务公司: $y=0.5x+900$

乙印务公司: $y=0.8x$

(2)若 $0.5x+900>0.8x$

$\therefore x<3000$

即当印数多于3000份时,乙印务公司收

费多,所以 5 000 份时,应选择甲印务公司更合算.

四、12.解:(1)机动车行驶 5 小时后加油,加了  $36-12=24$ (L)油;

(2)由题图象可知,行驶 5 h,耗油  $42-12=30$ (L),平均每小时耗油 6 L,所以  $Q$  与  $t$  之间的关系式为  $Q=42-6t$ ;

(3)够用.理由如下:因为加油后油箱里的油可供行驶  $\frac{36}{6}=6$ (h),  $6 \times 40=240$ (km)  $> 230$  (km),所以油箱中的油够用.

13.解:(1)排数与座位数在变化.其中自变量是排数,因变量是座位数.

(2)第 5 排有 76 座,第 6 排有 80 座.

(3)因为第 1 排有 60 座,即  $60+4 \times (1-1)$ ;第 2 排有 64 座,即  $60+4 \times (2-1)$ ;第 3 排有 68 座,即  $60+4 \times (3-1)$ ;...;第  $n$  排有  $60+4 \times (n-1)$  座.

(4)因为第  $n$  排有  $60+4 \times (n-1)$  座,所以  $60+4 \times (n-1)=136$ .解得  $n=20$ .

#### 测试卷(四)

一、1.D 2.B 3.C 4.C 5.A 6.D 7.B

8.D 9.A 10.C

二、11.2.63  $\times 10^{-6}$  12.12 13.60°

14.52 15.9 16.-2 17.25

三、18.解:原式  $=2-1+1-2=0$ .

19.解:原式  $=-6a^3b^7 \div 6a^2b^3 = -ab^4$

20.解:(1)略

(2) $OB \parallel PC$  同位角相等,两直线平行

四、21.解:原式  $=4x^2-y^2-(4x^2+4xy+y^2)+2y^2$   
 $=4x^2-y^2-4x^2-4xy-y^2+2y^2=-4xy$ .

当  $x=1, y=-\frac{1}{2}$  时,

原式  $=-4 \times 1 \times \left(-\frac{1}{2}\right) = 2$

22.解:(1)反映了鞋长和鞋码之间的关系,鞋长是自变量,鞋码是因变量;

(2)从表格数据的变化规律可知,鞋码等于鞋长的 2 倍减 10,由此可知,44 号鞋码的鞋长为 27 cm.

23.解:(1) $AD$  与  $BC$  平行.

$\therefore AC$  平分  $\angle BCD, \angle ACB=40^\circ$ ,

$\therefore \angle BCD=2\angle ACB=80^\circ$ .

又  $\because \angle D=100^\circ$ ,

$\therefore \angle BCD + \angle D = 80^\circ + 100^\circ = 180^\circ, \therefore$

$AD \parallel BC$ .

(2)由(1)知  $AD \parallel BC, \therefore \angle DAC = \angle ACB = 40^\circ$ .

$\therefore \angle BAC = 70^\circ, \therefore \angle B = 70^\circ$ .

$\therefore \angle EAD = \angle B = 70^\circ$ .

五、24.解:(1)8 32 (2) $32 \div 1 + 25 = 57$ (小时);

(3)从图象上可知:从第 10 时起到第 25 时止风速为 32 千米/时保持不变,所以第 20 时的风速为 32 千米/时,第 30 时的风速为  $32 - (30-25) \times 1 = 27$ (千米/时).

25.(1)1.  $\angle BED = \angle B + \angle D$

2.  $\angle B = \angle BED + \angle D$

3.  $\angle D = \angle B + \angle BED$

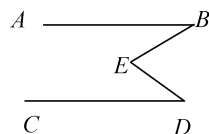


图1

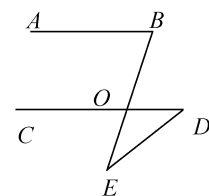


图2

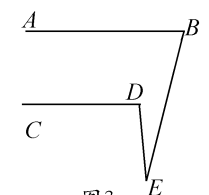


图3

(2)证明:如图 2

$\because AB \parallel CD$

$\therefore \angle B = \angle COE$

又  $\because \angle COE + \angle DOE = 180^\circ$ ,

$\angle DOE + \angle D + \angle BED = 180^\circ$

$\therefore \angle COE = \angle D + \angle BED$

$\therefore \angle B = \angle BED + \angle D$

#### 测试卷(五)

一、1.B 2.A 3.A 4.A 5.B 6.C 7.A

二、8.55° 9.80°

10.③

11.4 12.52°

三、13.略

14.解:  $\because \angle B = 33^\circ, \angle C = 67^\circ, \therefore \angle BAC = 180^\circ - \angle B - \angle C = 180^\circ - 33^\circ - 67^\circ = 80^\circ$ .

$\because AE$  平分  $\angle BAC$ ,

$$\therefore \angle CAE = \frac{1}{2} \angle BAC = \frac{1}{2} \times 80^\circ = 40^\circ.$$

$\because AD$  是  $\triangle ABC$  的高,  $\therefore \angle ADC = 90^\circ$ .

$$\therefore \angle CAD + \angle C = 90^\circ,$$

$$\text{即 } \angle CAD = 90^\circ - \angle C = 90^\circ - 67^\circ = 23^\circ.$$

$$\therefore \angle EAD = \angle CAE - \angle CAD = 40^\circ - 23^\circ = 17^\circ.$$

15.解:  $\because AD \parallel BC$ ,

$$\therefore \angle DAC = \angle BCA.$$

在  $\triangle ADC$  和  $\triangle CBA$  中,

$$\begin{cases} AD = CB, \\ \angle DAC = \angle BCA, \\ AC = CA, \end{cases}$$

$$\therefore \triangle ADC \cong \triangle CBA (\text{SAS}). \therefore AB = CD.$$

四、16.(1)证明:  $\because AD \perp AB, BC \perp AB$ ,

$$\therefore \angle BAD = \angle ABC = 90^\circ.$$

在  $\triangle ABC$  和  $\triangle BAD$  中,

$$\begin{cases} BC = AD, \\ \angle ABC = \angle BAD, \\ AB = BA, \end{cases}$$

$$\therefore \triangle ABC \cong \triangle BAD (\text{SAS});$$

(2)证明:  $\because \triangle ABC \cong \triangle BAD$ ,

$$\therefore \angle OAB = \angle OBA.$$

$\therefore \triangle OAB$  为等腰三角形,  $OA = OB$ .

五、17.(1)  $\because \triangle ABC, \triangle ADE$  等腰直角三角形

$$\therefore DA = EA, \angle DAE = \angle CAB = 90^\circ,$$

$$BA = CA,$$

$$\therefore \triangle ADB \cong \triangle AEC (\text{SAS}), \therefore BD = CE.$$

(2)  $\because \triangle ADB \cong \triangle AEC$ , 所以  $\angle DBA = \angle ECA$ .

$$\therefore \angle BFC = 180^\circ - \angle ACE - \angle CDF = 180^\circ - \angle DBA - \angle BDA = \angle DAB = 90^\circ.$$

(3)  $BD = CE$  且  $\angle BFC = 90^\circ$  同样成立.

理由:  $\because \triangle ABC, \triangle ADE$  是等腰直角三角形,

$$\therefore AB = AC, AD = AE,$$

$$\text{又 } \because \angle BAC = \angle EAD,$$

$$\therefore \angle BAC + \angle CAD = \angle EAD + \angle CAD, \text{ 即 } \angle BAD = \angle CAE.$$

$$\therefore \triangle ADB \cong \triangle AEC.$$

$$\therefore BD = CE, \angle ABF = \angle ACF.$$

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

### 测试卷(六)

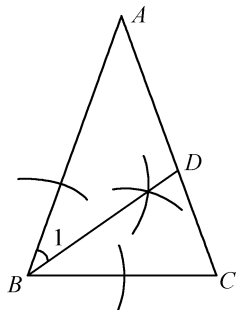
一、1.C 2.C 3.D 4.C 5.A 6.B 7.B

8.B

二、9.8 10.5 11.3 12.2 13.15° 14.52°

三、15.略

16.解:(1)如图所示为所求:



(2)  $\because AB = AC$ ,

$$\therefore \angle ABC = \angle C = \frac{1}{2} (180^\circ - \angle A) = \frac{1}{2}$$

$$(180^\circ - 40^\circ) = 70^\circ.$$

$\because BD$  平分  $\angle ABC$ ,

$$\therefore \angle 1 = \frac{1}{2} \angle ABC = \frac{1}{2} \times 70^\circ = 35^\circ,$$

$$\therefore \angle BDC = \angle A + \angle 1 = 40^\circ + 35^\circ = 75^\circ.$$

四、17.证明:  $\because OD \perp AB, OE \perp AC$ ,

$$\therefore \angle ODB = \angle OEC = 90^\circ.$$

$$\because AB = AC, \therefore \angle B = \angle C.$$

在  $\triangle OBD$  和  $\triangle OCE$  中,

$$\begin{cases} \angle ODB = \angle OEC, \\ OB = OC, \\ \angle B = \angle C, \end{cases}$$

$$\therefore \triangle OBD \cong \triangle OCE (\text{AAS}). \therefore BD = CE.$$

又  $\because AB = AC$ .

$$\therefore AB - BD = AC - CE, \text{ 即 } AD = AE.$$

18.解:(1)  $\because AB = AC, \therefore \angle B = \angle ACB$ .

$$\therefore \angle B = \frac{1}{2} (180^\circ - \angle A) = \frac{1}{2} (180^\circ - 40^\circ)$$

$$= 70^\circ.$$

$$\text{又 } \because \angle BNM = 90^\circ,$$

$$\therefore \angle NMB = 90^\circ - \angle B = 90^\circ - 70^\circ = 20^\circ.$$

$$(2) \text{同理可得: } \angle NMB = 35^\circ.$$

(3) 猜想规律: 等腰三角形一腰的垂直平分线与底边或底边延长线的夹角等于顶角的一半, 即  $\angle NMB = \frac{1}{2} \angle A$ .

理由:  $\because AB = AC$ ,

$$\therefore \angle B = \angle C = \frac{1}{2}(180^\circ - \angle A).$$

$$\because \angle BNM = 90^\circ,$$

$$\therefore \angle NMB = 90^\circ - \angle B = 90^\circ - \frac{1}{2}(180^\circ - \angle A) = \frac{1}{2} \angle A.$$

$$\therefore \angle NMB = \frac{1}{2} \angle A.$$

### 测试卷(七)

一、1. D 2. B 3. D 4. B 5. D 6. B 7. A  
8. D

二、9. 4 10.  $\frac{1}{4}$  11.  $\frac{2}{7}$

三、12. 解: 取出绿球的概率为  $1 - \frac{2}{5} = \frac{3}{5}$

设袋中的绿球为  $x$  个, 则根据题意有:

$$\frac{12}{12+x} = \frac{2}{5}$$

$$\text{解得: } x = 18$$

13. 解: (1) 0.30 84 0.34 (2) 摸出黄色小球的频率稳定在 0.34 左右.

四、14. 解: (1)  $\because$  整个圆被分成了 12 个扇形, 其中有 6 个扇形能享受折扣,  $\therefore P(\text{得到优惠})$

$$= \frac{6}{12} = \frac{1}{2}$$

(2)  $\because$  整个圆被分成了 4 个扇形, 其中有 2 个扇形能享受折扣,  $\therefore P(\text{得到优惠}) = \frac{2}{4}$

$$= \frac{1}{2}$$

$$(3) \text{转盘 1 能获得的优惠为 } \frac{0.3 \times 300 + 0.2 \times 300 \times 2 + 0.1 \times 300 \times 3}{12} =$$

25(元),

转盘 2 能获得的优惠为  $40 \times \frac{2}{4} = 20(\text{元})$ ,

所以选择转动转盘 1 更优惠

### 测试卷(八)

一、1. D 2. D 3. A 4. B 5. C 6. B 7. C  
8. A 9. B 10. A

二、11.  $y = 100 - 3x$  12.  $120^\circ$  13.  $80^\circ/20^\circ$

14.  $10^\circ$  15. 直角 16.  $\frac{2}{3}$  17. 9

三、18. 解: 原式  $= -1 + 1 + 9 - (-8) = 17$ .

$$19. \text{解: 原式} = -27a^3b^6 \div \left(\frac{1}{2}a^3b^3\right) \cdot (-2ab^3c) = -54b^3 \cdot (-2ab^3c) = 108ab^6c.$$

$$20. \text{解: 原式} = -1 + 2ab - 3a^2b^2.$$

$$四、21. \text{解: 原式} = y^2 - 4 - (y^2 + 5y - y - 5) = y^2 - 4 - y^2 - 5y + y + 5 = -4y + 1,$$

当  $y = -1$  时,

$$\text{原式} = -4 \times (-1) + 1 = 4 + 1 = 5.$$

22. 略

23. 解: (1) 证明:  $\because AB \parallel CD, \therefore \angle B = \angle C$ .

$$\text{又 } \because \angle A = \angle D, AE = DF,$$

$$\therefore \triangle ABE \cong \triangle DCF (\text{AAS});$$

(2) 证明:  $\because \triangle ABE \cong \triangle DCF$ ,

$$\therefore BE = CF.$$

$$\therefore BE - EF = CF - EF, \text{即 } CE = BF;$$

(3)  $\because \triangle ABE \cong \triangle DCF$ ,

$$\therefore AB = CD.$$

$$\text{又 } \because AB = CF, \therefore CD = CF.$$

$$\therefore \angle CFD = \angle D.$$

$$\text{又 } \angle B = \angle C = 30^\circ,$$

$$\therefore \angle D = \frac{1}{2}(180^\circ - 30^\circ) = 75^\circ.$$

五、24. 解: (1) 由图象可知, 小明最远离家 15 千米;

(2) 由图象可知, 他在第 0~1 时的速度

$$\text{为 } \frac{5}{1} = 5(\text{千米/时}), \text{在第 } 1 \sim 2 \text{ 时的速度}$$

$$\text{为 } \frac{15-5}{2-1} = 10(\text{千米/时});$$

$$(3) \text{平均速度为 } \frac{15}{2} = 7.5(\text{千米/时}).$$

25. (1)  $25^\circ$ ,  $115^\circ$ , 大,  $=$

(2) 当  $DC = 2$  时,  $\triangle ABD \cong \triangle DCE$ , 理由

如下:

$$\because \angle B = \angle C = 40^\circ, \angle ADE = 40^\circ$$

$$\therefore \angle BDA + \angle BAD = 140^\circ, \angle BDA + \angle EDC = 140^\circ$$

$$\therefore \angle BAD = \angle EDC$$

$$\text{又} \because AB = DC = 2$$

$$\therefore \triangle ABD \cong \triangle DCE (\text{ASA})$$

$$(3) \text{可以, ①当 } AE = DE \text{ 时, } \angle BDA = 80^\circ$$

$$\text{②当 } AD = DE \text{ 时, } \angle BDA = 110^\circ$$

### 测试卷(九)

一、1.C 2.C 3.A 4.B 5.B 6.C 7.B

8.C 9.B 10.D

二、11.  $61^\circ$  12.9 13.12

14.0.6 15.16 16.  $60^\circ$  17.  $n(n+1)$

三、18.解:原式  $= -9 + 1 - 1 + 9 = 0$ .

$$19. \text{解:原式} = (8x^3 - 4x^2y + 5x^2) \div 4x^2 = 2x - y + \frac{5}{4}.$$

20.略

四、21.解:(1)证明: $\because \angle 1 + \angle 2 = 180^\circ, C, D$  是直线  $AB$  上两点,

$$\text{又} \angle 1 + \angle DCE = 180^\circ,$$

$$\therefore \angle 2 = \angle DCE.$$

$$\therefore CE \parallel DF.$$

$$(2) \text{解:} \because CE \parallel DF, \angle DCE = 130^\circ,$$

$$\therefore \angle CDF = 180^\circ - \angle DCE = 180^\circ - 130^\circ = 50^\circ.$$

$$\because DE \text{ 平分 } \angle CDF,$$

$$\therefore \angle CDE = \frac{1}{2} \angle CDF = 25^\circ.$$

$$\because EF \parallel AB,$$

$$\therefore \angle DEF = \angle CDE = 25^\circ.$$

$$22. \text{解:原式} = a^2 + 2ab - (a^2 + 2a + 1) + 2a = a^2 + 2ab - a^2 - 2a - 1 + 2a = 2ab - 1.$$

$$\text{当 } a = 3, b = -2 \text{ 时,}$$

$$\text{原式} = 2 \times 3 \times (-2) - 1 = -12 - 1 = -13.$$

$$23. \text{解:解:(1)} \because \angle B + \angle C + \angle BAC = 180^\circ,$$

$$\therefore \angle BAC = 180^\circ - \angle B - \angle C = 180^\circ - 70^\circ - 30^\circ = 80^\circ.$$

$$\because AE \text{ 平分 } \angle BAC,$$

$$\therefore \angle BAE = \frac{1}{2} \angle BAC = 40^\circ;$$

$$(2) \because AD \perp BC, \therefore \angle ADE = 90^\circ.$$

$$\text{又} \because \angle ADE = \angle B + \angle BAD,$$

$$\therefore \angle BAD = 90^\circ - \angle B = 90^\circ - 70^\circ = 20^\circ.$$

$$\therefore \angle DAE = \angle BAE - \angle BAD = 40^\circ - 20^\circ = 20^\circ;$$

五、24.解:(1)甲先出发,出发早 1 小时;

(2)乙先到达  $B$  地,早到 2 小时;

(3)设乙出发  $x$  小时后追上甲,则

$$\frac{50}{3-2}x - \frac{50-20}{5-2}x = 20,$$

$$\text{解得 } x = \frac{1}{2} (\text{小时}).$$

$\therefore$  乙出发  $\frac{1}{2}$  小时后追上甲.

25.(1)过  $A$  点作  $AF \perp BC$  于  $F$  点

$$\therefore \angle AFB = \angle AFC = 90^\circ$$

$$\because \triangle ABC \text{ 中, 已知 } AB = AC, \angle BAC = 90^\circ, BC = 8 \text{ cm},$$

$$\therefore \angle ABC = \angle ACD = 45^\circ$$

$$\text{又} \because AF = AF$$

$$\therefore \triangle AFB \cong \triangle AFC$$

$$\therefore BF = CF = 4 \text{ cm}$$

$$\therefore \triangle AFB \text{ 是等腰直角三角形}$$

$$\therefore AF = BF = 4 \text{ cm 又} \because CD = 2t, \triangle ABD \text{ 的面积为 } 10 \text{ cm}^2$$

①当  $D$  点在  $B$  右侧时

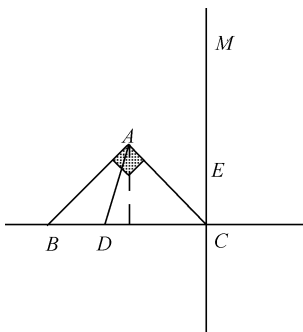
$$\frac{(8-2t) \times 4}{2} = 10$$

$$t = 2.5s$$

②当  $D$  点在  $B$  点左侧时

$$\frac{(2t-8) \times 4}{2} = 10$$

$$t = 7.5s$$



(2)① $\because \angle ABC = \angle ACD = 45^\circ, CM \perp BC$

$$\therefore \angle ACE = 45^\circ$$

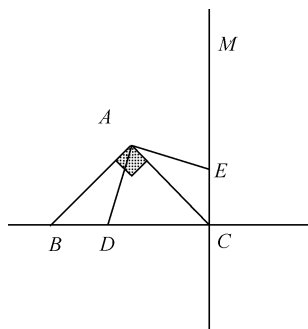
$$\therefore \angle ABC = \angle ACE = 45^\circ$$

$$\text{又} \because AB = AC$$

$$\therefore \text{只要 } BD = CE \text{ 时, } \triangle ABD \cong \triangle ACE$$

$$\therefore 8 - 2t = t$$

$$\therefore t = \frac{8}{3}$$



$$\textcircled{2} \because \angle ABC = \angle ACD = 45^\circ, CM \perp BC$$

$$\therefore \angle ABD = \angle ACE = 135^\circ$$

$$\text{又} \because AB = AC$$

$$\therefore \text{只要 } BD = CE \text{ 时, } \triangle ABD \cong \triangle ACE$$

$$\therefore 2t - 8 = t$$

$$\therefore t = 8$$

