17.解:(1)$\because 2x+5y-3=0$,$\therefore 2x+5y=3$.
$\therefore 4^x\cdot 32^y=2^{2x}\cdot 2^{5y}=2^{2x+5y}=2^3=8$.
(2)$\because 2\times 8^x\times 16=2^{23}$,$\therefore 2\times 2^{3x}\times 2^4=2^{23}$.
$\therefore 1+3x+4=23$.
解得 $x=6$.
四、
18.解:(1)$A=(3x-1)(2x+1)-x+1-6y^2$
$=6x^2+x-1-x+1-6y^2$
$=6x^2-6y^2$.
(2)解方程组$\begin{cases}x+y=5,\\x-y=1,\end{cases}$得$\begin{cases}x=3,\\y=2.\end{cases}$
$\therefore A=6x^2-6y^2=6\times 3^2-6\times 2^2=54-24=30$.
19.解:(1)$(6a+5b-a)(5b-a-a)=(5a+5b)(5b-2a)=-10a^2+15ab+25b^2$.
答:剩余草坪的面积是$(-10a^2+15ab+25b^2)$平方米.
(2)当 $a=1$,$b=3$ 时,$-10a^2+15ab+25b^2=-10\times 1^2+15\times 1\times 3+25\times 3^2=260$.
$\therefore a=1$,$b=3$ 时,剩余草坪的面积是 260 平方米.
20.解:(1)$x=2$.
(2)1,3.(答案不唯一)
(3)根据题意,得 $4k+b=0$.
$\therefore b=-4k$.
解关于 y 的方程 $k(3y+2)-(-4k)=0$,
$3ky+6k=0$.
$\because k\neq 0$,$\therefore 3y+6=0$.
解得 $y=-2$.
五、
21.解:(1)$\because (2x-a)(3x+b)$
$=6x^2+2bx-3ax-ab$
$=6x^2+(2b-3a)x-ab$
$=6x^2-5x-6$,
$\therefore 2b-3a=-5$.①
$\because (2x+a)(x+b)$
$=2x^2+2bx+ax+ab$
$=2x^2+(2b+a)x+ab$
$=2x^2+7x+6$,
$\therefore 2b+a=7$.②
由①和②组成方程组:$\begin{cases}2b-3a=-5,\\2b+a=7.\end{cases}$
解得$\begin{cases}a=3,\\b=2.\end{cases}$
(2)$(2x+3)(3x+2)=6x^2+13x+6$.
22.解:(1)2;3.
(2)(5,14).
理由:设(5,2)=x,(5,7)=y,
则 $5^x=2$,$5^y=7$.
$\therefore 5^{x+y}=5^x\cdot 5^y=14$.$\therefore$(5,14)=x+y.
$\therefore$(5,2)+(5,7)=(5,14).
(3)证明:设$(2^n,3^n)=x$,
则$(2^n)^x=3^n$,即$(2^x)^n=3^n$.
$\therefore 2^x=3$,即(2,3)=x.
$\therefore (2^n,3^n)=(2,3)$对于任意自然数 n 都成立.
六、
23.解:(1)$\because \log_x 4=2$,$\therefore x^2=4$.
$\because x>0$,$\therefore x=2$.
(2)$\log_4 50=\log_4(10\times 5)=\log_4 10+\log_4 5=a+b$.
(3)$(\lg 2)^2+\lg 2\cdot\lg 5+\lg 5-2020$
$=\lg 2(\lg 2+\lg 5)+\lg 5-2020$
$=\lg 2\cdot\lg 10+\lg 5-2020$
$=\lg 2+\lg 5-2020$
$=\lg 10-2020$
$=1-2020$
$=-2019$.

第 12 期

2 版

14.1.4 整式的乘法(二)

第 4 课时

1.D
2.$\frac{9}{16}$
3.解:(1)原式$=y^9\div y^6=y^3$.
(2)原式$=a^6+a^6-a^6=a^6$.
4.C
5.解:(1)原式$=48x^5y^2\div 8xy=6x^4y$.
(2)原式$=-3a^6b^7c\cdot\frac{1}{2}a=-\frac{3}{2}a^7b^7c$.
6.解:(1)原式$=15x^2y\div 5xy-10xy^2\div 5xy=3x-2y$.
(2)原式$=b^2-2ab+4a^2-2ab=b^2-4ab+4a^2$.
7.解:$\because 3^2\cdot 9^{2a+1}\div 27^{a+1}=81$,
$\therefore 3^2\cdot 3^{4a+2}\div 3^{3a+3}=3^4$.
$\therefore 3^{4a+4}\div 3^{3a+3}=3^4$,即 $3^{a+1}=3^4$.
$\therefore a+1=4$.
解得 $a=3$.

14.2.1 平方差公式

1.B
2.解:(1)原式$=4x^2-25$.
(2)原式$=a^2-1-a^2+2a=2a-1$.
3.$(a+2)(a-2)=a^2-4$

14.2.2 完全平方公式

第 1 课时

1.B
2.解:(1)原式$=4m^2-12mn+9n^2$.
(2)原式$=16x^2+16xy+4y^2$.
(3)原式$=(200-2)^2=40000-2\times 2\times 200+2^2=39204$.
3.D

第 2 课时

1.C
2.解:(1)原式$=[(x-2y)+1]^2$
$=(x-2y)^2+2(x-2y)+1$
$=x^2-4xy+4y^2+2x-4y+1$.
(2)原式$=[2x+(y+z)][2x-(y+z)]$
$=(2x)^2-(y+z)^2$
$=4x^2-(y^2+2yz+z^2)$
$=4x^2-y^2-2yz-z^2$.

3~4 版

一、选择题

1~3.CBD	4~6.ADC

二、填空题

7.m^2	8.$4b-3a$
9.-1	10.2
11.1	12.20

三、
13.(1)$\frac{1}{4}x^2-y^2$;
(2)$49x^2-28xy+4y^2$.
14.解:(1)原式$=4x^2+4x+1-4(x^2-1)=4x^2+4x+1-4x^2+4=4x+5$.
(2)原式$=4a^2-4ab+b^2-(4a^2-2ab)=4a^2-4ab+b^2-4a^2+2ab=b^2-2ab$.
15.解:原式$=(x^2y^2-4-2x^2y^2+4)\div xy$
$=-x^2y^2\div xy$
$=-xy$.
当 $x=1$,$y=-\frac{1}{2}$时,
原式$=-1\times\left(-\frac{1}{2}\right)=\frac{1}{2}$.
16.解:(1)$\because a^n=2$,$a^{m+2n}=12$,
$\therefore a^{m+2n}=a^m\cdot(a^n)^2=4a^m=12$.$\therefore a^m=3$.
(2)由(1),得
$a^{2m-3n}=(a^m)^2\div(a^n)^3=3^2\div 2^3=\frac{9}{8}$.
17.解:(1)一,完全平方公式用错.
(2)原式$=x^2-4x+4-(x^2-1)$
$=x^2-4x+4-x^2+1$
$=-4x+5$.
四、
18.解:(1)$\because (a^x)^y=a^6$,$(a^x)^2\div a^y=a^3$,
$\therefore a^{xy}=a^6$,$a^{2x}\div a^y=a^{2x-y}=a^3$.
$\therefore xy=6$,$2x-y=3$.
(2)$4x^2+y^2=(2x-y)^2+4xy=3^2+4\times 6=9+24=33$.
19.解:(1)48,48,48.
(2)证明:设四个数围起来的中间的数为 x,则四个数从小到大依次为 $x-7$,$x-1$,$x+1$,$x+7$.
则$(x-1)\cdot(x+1)-(x-7)\cdot(x+7)$
$=(x^2-1)-(x^2-49)$
$=x^2-1-x^2+49$
$=48$.
20.解:(1)$\because S=\frac{(BC+AD)\cdot BE}{2}$,
$\therefore S=\frac{(4x+y+5x+2y)\cdot(x+2y)}{2}=\frac{9}{2}x^2+\frac{21}{2}xy+3y^2$.
答:这块空地的面积为$\left(\frac{9}{2}x^2+\frac{21}{2}xy+3y^2\right)$平方米.
(2)$\because$ 长方形广场的面积为$(6x^2+12xy+9x)$平方米,宽为 $3x$ 米,
$\therefore$ 长方形广场的长为$(6x^2+12xy+9x)\div 3x=2x+4y+3$.
$\therefore 5x+2y-(2x+4y+3)=3x-2y-3$.
答:长方形广场的长比梯形的下底小$(3x-2y-3)$米.
五、
21.解:(1)x^n-1.
(2)$1+5+5^2+5^3+5^4+5^5+\cdots+5^{2018}+5^{2019}+5^{2020}$
$=\frac{1}{4}\times(5-1)(1+5+5^2+5^3+5^4+5^5+\cdots+5^{2018}+5^{2019}+5^{2020})$
$=\frac{1}{4}\times(5^{2021}-1)$
$=\frac{5^{2021}-1}{4}$.
22.解:(1)$(a+b)^2=(a-b)^2+4ab$.
(2)4 或-4.
(3)$\because (2019-m)^2+(m-2020)^2=7$,
又$(2019-m+m-2020)^2=(2019-m)^2+(m-2020)^2+2(2019-m)(m-2020)$,
$\therefore 1=7+2(2019-m)(m-2020)$.
$\therefore (2019-m)(m-2020)=-3$.
六、
23.解:(1)设 $9-x=a$,$x-4=b$,则$(9-x)(x-4)=ab=4$,$a+b=(9-x)+(x-4)=5$.
$\therefore (9-x)^2+(x-4)^2=a^2+b^2=(a+b)^2-2ab=5^2-2\times 4=17$.
(2)$\because$ 正方形 ABCD 的边长为x,
$\therefore DE=x-2$,$DF=x-4$.
设 $x-2=a$,$x-4=b$,
则 $S_{正方形EMFD}=ab=63$,$a-b=(x-2)-(x-4)=2$.
$\therefore (a+b)^2=(a-b)^2+4ab=256$,
即 $a+b=16$.
$\therefore (x-2)^2-(x-4)^2=a^2-b^2=(a+b)(a-b)=32$.
$\therefore$ 阴影部分的面积是 32.

第 9 期

2~3 版

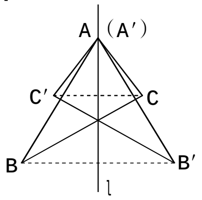
一、选择题

1~3.ADA	4~6.BCC

二、填空题

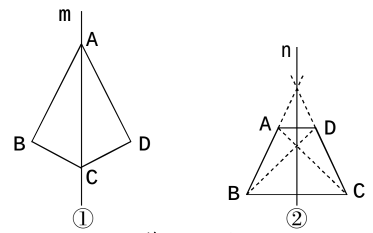
7.52°	8.5
9.240°	10.3
11.8	12.40°或 100°或 140°

三、
13.证明:$\because CD\parallel AB$,$\angle ACD=60°$,
$\therefore \angle A=\angle ACD=60°$.
$\because \angle B=60°$,
$\therefore \angle ACB=180°-\angle A-\angle B=60°$.
$\therefore \angle A=\angle B=\angle ACB$.
$\therefore \triangle ABC$ 是等边三角形.
14.解:根据题意,得 $BA=BD$,
则$\angle BAD=\angle BDA$.
$\because \angle B=50°$,
$\therefore \angle BAD=\angle BDA=65°$.
$\because \angle BDA=\angle DAC+\angle C$,$\angle C=36°$,
$\therefore \angle DAC=\angle BDA-\angle C=65°-36°=29°$.
15.解:如图所示.



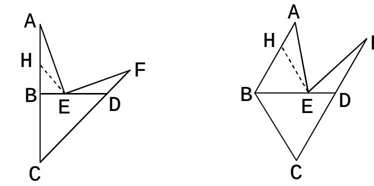
(第 15 题图)

16.解:$\because MN\parallel BC$,
$\therefore \angle MEB=\angle CBE$,$\angle NEC=\angle BCE$.
$\because \angle ABC$ 和$\angle ACB$ 的平分线交于点 E,
$\therefore \angle MBE=\angle EBC$,$\angle NCE=\angle BCE$.
$\therefore \angle MEB=\angle MBE$,$\angle NEC=\angle NCE$.
$\therefore ME=MB$,$NE=NC$.
$\therefore MN=ME+NE=BM+CN=5$.
故线段 MN 的长为 5.
17.解:(1)$\because AB$ 边的垂直平分线分别交 AB,BC 于点 D,E,
$\therefore BE=AE$.$\therefore \angle BAE=\angle B=30°$.
又$\because \angle BAC=80°$,
$\therefore \angle CAE=\angle BAC-\angle BAE=80°-30°=50°$.
(2)由(1)知 $AE=BE$,
$\therefore AE+CE+AC=BE+CE+AC=BC+AC=12$cm.
$\therefore \triangle AEC$ 的周长为 12cm.
四、
18.解:(1)如图①,直线 m 即为所求.
(2)如图②,直线 n 即为所求.



(第 18 题图)

19.解:(1)$\because AB=AC$,$AD\perp BC$ 于点 D,
$\therefore \angle BAD=\angle CAD$,$\angle ADC=90°$.
又$\angle C=42°$,
$\therefore \angle BAD=\angle CAD=90°-42°=48°$.
(2)证明:$\because AB=AC$,$AD\perp BC$ 于点 D,
$\therefore \angle BAD=\angle CAD$.
$\because EF\parallel AC$,$\therefore \angle F=\angle CAD$.
$\therefore \angle BAD=\angle F$.$\therefore AE=FE$.
20.解:(1)$\because \triangle ABC$ 是等边三角形,
$\therefore \angle B=\angle A=\angle C=60°$.
$\because \angle B+\angle 1+\angle DEB=180°$,$\angle DEB+\angle DEF+\angle 2=180°$,$\angle DEF=60°$,
$\therefore \angle 1+\angle DEB=\angle 2+\angle DEB$.
$\therefore \angle 2=\angle 1=50°$.
(2)证明:$\because DF\parallel BC$,
$\therefore \angle FDE=\angle DEB$.
$\because \angle B+\angle 1+\angle DEB=180°$,$\angle FDE+\angle 3+\angle DEF=180°$,$\angle B=\angle DEF=60°$,
$\therefore \angle 1=\angle 3$.
五、
21.解:(1)点 O 到$\triangle ABC$ 的三个顶点 A,B,C 的距离的关系是 $OA=OB=OC$.
(2)$\triangle OMN$ 是等腰直角三角形.
证明:$\because \triangle ABC$ 中,$AB=AC$,$\angle BAC=90°$,O 为 BC 的中点,
$\therefore OA=OB=OC$,AO 平分$\angle BAC$,$AO\perp BC$.
$\therefore \angle AOB=90°$,$\angle B=\angle C=45°$,$\angle BAO=\angle CAO=45°$.
$\therefore \angle CAO=\angle B$.
在$\triangle AON$ 和$\triangle BOM$ 中,
$\begin{cases}AN=BM,\\\angle CAO=\angle B,\\OA=OB,\end{cases}$
$\therefore \triangle AON\cong\triangle BOM$(SAS).
$\therefore OM=ON$,$\angle AON=\angle BOM$.
$\because \angle BOM+\angle AOM=\angle AOB=90°$,
$\therefore \angle AON+\angle AOM=90°$,
即$\angle MON=90°$.
$\therefore \triangle OMN$ 是等腰直角三角形.
22.解:探究:证明:如图①,在线段 BA 上取点 H,使 $BH=BE$,连接 EH.
$\because \angle CBD=90°$,$BC=BD$,
$\therefore \angle ABE=90°$,$\angle EDF=135°$.
$\because BH=BE$,$\therefore \angle BHE=45°$.
$\therefore \angle AHE=\angle EDF=135°$.
$\because BD=BC$,$BC=BA$,$\therefore BA=BD$.
$\therefore AH=DE$.
$\because AE\perp EF$,$\therefore \angle AEF=90°$.
$\therefore \angle FED+\angle AEB=90°$.
$\because \angle A+\angle AEB=90°$,$\therefore \angle A=\angle FED$.
$\therefore \triangle AHE\cong\triangle EDF$(ASA).$\therefore AE=EF$.
应用:解:如图②,在线段 BA 上取点 H,使 $BH=BE$,连接 EH.
$\because \angle CBD=60°$,$BC=BD$,
$\therefore \triangle BCD$ 是等边三角形.
$\therefore \angle BCD=\angle BDC=60°$.
$\because$ 点 A、点 C 关于线段 BD 对称,
$\therefore AB=BC$.
$\because BC=BD$,$\therefore AB=BD$.
又 $BH=BE$,$\therefore AH=DE$.
$\because \angle BHE=\angle CDB=60°$,
$\therefore \angle AHE=\angle EDF=120°$.
$\because \angle AED=\angle AEF+\angle DEF=\angle ABD+\angle EAH$,$\angle AEF=\angle ABD=60°$,
$\therefore \angle DEF=\angle EAH$.
$\therefore \triangle AHE\cong\triangle EDF$(ASA).
$\therefore EH=DF=2$.
$\therefore BE=EH=2$,$BD=2+1=3$.



(第 22 题图)

六、
23.解:(1)$AF=BD$.
(2)结论仍然成立.
证明:$\because \triangle ABC$ 和$\triangle DCF$ 都是等边三角形,
$\therefore AC=BC$,$CD=CF$,$\angle ACB=\angle DCF=60°$.
$\therefore \angle ACB+\angle ACD=\angle DCF+\angle ACD$,
即$\angle BCD=\angle ACF$.
在$\triangle BCD$ 和$\triangle ACF$ 中,
$\begin{cases}BC=AC,\\\angle BCD=\angle ACF,\\CD=CF,\end{cases}$
$\therefore \triangle BCD\cong\triangle ACF$(SAS).
$\therefore AF=BD$.
(3)$AF+BF'=AB$.
证明:由(1)知,$\triangle BCD\cong\triangle ACF$.
$\therefore BD=AF$.
同理可证,$\triangle BCF'\cong\triangle ACD$(SAS).
$\therefore BF'=AD$.
$\therefore AF+BF'=BD+AD=AB$.

第 10 期

期中检测卷(一)

一、选择题

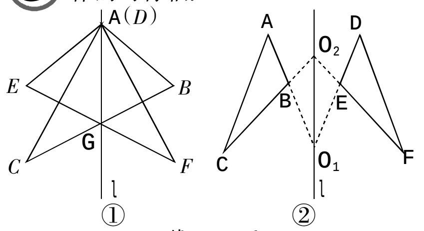
1~3.DBD	4~6.CBC

二、填空题

7.5	8.105°
9.45°	10.-3
11.$\frac{a-b}{2}$	12.40°或 20°

三、
13.解:(1)根据题意,得$(n-2)\times 180°=3\times 360°$.
解得 $n=8$.
(2)证明:$\because BE=CF$,
$\therefore BE+EF=CF+EF$,即 $BF=CE$.
在$\triangle ABF$ 和$\triangle DCE$ 中,
$\begin{cases}AB=DC,\\\angle B=\angle C,\\BF=CE,\end{cases}$
$\therefore \triangle ABF\cong\triangle DCE$(SAS).
$\therefore AF=DE$.
14.解:根据三角形的三边关系,得
$11-2<BC<11+2$,
即 $9<BC<13$.
$\because BC$ 为奇数,
$\therefore BC=11$.
$\therefore \triangle ABC$ 的周长为 $11+11+2=24$.

③ 15.解：如图，直线l就是所求作的对称轴.



（第15题图）

16.解：$\because AB/\!/CD$，

$\therefore \angle B=\angle DCB$，$\angle DCE=\angle AEC$，$\angle AED+\angle D=180^\circ$.

$\because \angle B=44^\circ$，$\therefore \angle DCB=44^\circ$.

$\because \angle BCE=30^\circ$，

$\therefore \angle DCE=\angle DCB+\angle BCE=44^\circ+30^\circ=74^\circ$.

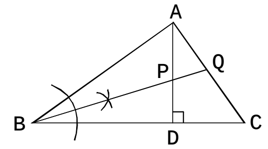
$\therefore \angle AEC=\angle DCE=74^\circ$.

$\because EC$为$\angle AED$的平分线，

$\therefore \angle AED=2\angle AEC=2\times74^\circ=148^\circ$.

$\therefore \angle D=180^\circ-148^\circ=32^\circ$.

17.解：如图，BQ就是所求作的$\angle ABC$的平分线，P，Q为两个交点.



（第17题图）

证明如下：$\because AD\perp BC$，

$\therefore \angle ADB=90^\circ$.$\therefore \angle BPD+\angle PBD=90^\circ$.

$\because \angle BAC=90^\circ$，

$\therefore \angle AQP+\angle ABQ=90^\circ$.

$\because \angle ABQ=\angle PBD$，

$\therefore \angle BPD=\angle AQP$.

$\because \angle BPD=\angle APQ$，

$\therefore \angle APQ=\angle AQP$.

$\therefore AP=AQ$.

四、

18.解：(1)证明：$\because \angle ACD$的平分线CE交AB于点F，

$\therefore \angle ACF=\angle DCF$.

$\because AB/\!/CD$，$\therefore \angle AFC=\angle DCF$.

$\therefore \angle ACF=\angle AFC$.$\therefore AC=AF$.

(2)$\because \angle FCD=30^\circ$，$AB/\!/CD$，

$\therefore \angle ACD=\angle GAF=60^\circ$，$\angle AFC=30^\circ$.

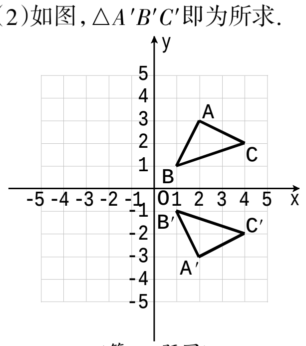
$\because \angle AFE$的平分线交CA的延长线于点G，

$\therefore \angle AFG=\angle GFE=\frac{1}{2}\angle AFE=\frac{1}{2}\times150^\circ=75^\circ$.

$\therefore \angle G=180^\circ-\angle GAF-\angle AFG=180^\circ-60^\circ-75^\circ=45^\circ$.

19.解：(1)$\frac{5}{2}$.

(2)如图，$\triangle A'B'C'$即为所求.



（第19题图）

(3)点M在$\triangle A'B'C'$内部的对应点M'的坐标为$(x,-y)$.

20.证明：(1)$\because BA\perp AM$，$MN\perp AC$，

$\therefore \angle BAM=\angle ANM=90^\circ$.

$\therefore \angle PAQ+\angle MAN=\angle MAN+\angle AMN=90^\circ$.

$\therefore \angle PAQ=\angle AMN$.

$\because PQ\perp AB$，$MN\perp AC$，

$\therefore \angle PQA=\angle ANM=90^\circ$.

又$\because AQ=MN$，

$\therefore \triangle PQA\cong\triangle ANM$(ASA).

$\therefore AP=AM$.

$\therefore \triangle APM$是等腰三角形.

(2)由(1)知，$\triangle PQA\cong\triangle ANM$.

$\therefore AN=PQ$，$AM=AP$.

$\therefore \angle AMB=\angle APM$.

$\because \angle APM=\angle BPC$，$\angle BPC+\angle PBC=90^\circ$，$\angle AMB+\angle ABM=90^\circ$，

$\therefore \angle ABM=\angle PBC$.

$\because PQ\perp AB$，$PC\perp BC$，

$\therefore PQ=PC$.

$\therefore PC=AN$.

五、

21.解：(1)$\because \triangle ABC$和$\triangle CDE$都是等边三角形，

$\therefore AC=BC$，$DC=EC$，$\angle ACB=\angle DCE=60^\circ$.

$\therefore \angle ACB+\angle BCD=\angle DCE+\angle BCD$，

即$\angle ACD=\angle BCE$.

在$\triangle ACD$和$\triangle BCE$中，

$\begin{cases}AC=BC,\\ \angle ACD=\angle BCE,\\ DC=EC,\end{cases}$

$\therefore \triangle ACD\cong\triangle BCE$(SAS).

$\therefore \angle CAD=\angle CBE$.

又$\because \angle AMC=\angle BMP$，

$\therefore \angle APB=\angle ACB=60^\circ$.

(2)证明：在$\triangle ACM$和$\triangle BCN$中，

$\begin{cases}\angle CAD=\angle CBE,\\ AC=BC,\\ \angle ACB=\angle BCD=60^\circ,\end{cases}$

$\therefore \triangle ACM\cong\triangle BCN$(ASA).

$\therefore CM=CN$.

22.解：(1)证明：$\because$在$\triangle ABC$中，$\angle ABC=90^\circ$，

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

又在$\triangle ABD$中，$\angle ABD+\angle ADB+\angle BAD=180^\circ$，且$\angle ABD+\angle ADB=\angle ACB$，

$\therefore \angle ACB+\angle BAD=180^\circ$，

即$\angle ACB+\angle BAC+\angle CAD=180^\circ$.

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

$\therefore AD\perp AC$.

(2)$\angle BAC=2\angle ACD$.

理由：$\because \angle ABC=90^\circ$，

$\therefore \angle BAC=90^\circ-\angle ACB=90^\circ-(\angle BCD-\angle ACD)$.

$\because \angle DAC=90^\circ$，

$\therefore \angle ADC=90^\circ-\angle ACD$.

$\because \angle ADC=\angle BCD$，

$\therefore \angle BCD=90^\circ-\angle ACD$.

$\therefore \angle BAC=90^\circ-(90^\circ-\angle ACD-\angle ACD)=2\angle ACD$.

六、

23.证明：(1)$\because \angle BAC=90^\circ$，$AB=AC$，

$\therefore \angle B=\angle ACB=45^\circ$.

$\because FC\perp BC$，$\therefore \angle BCF=90^\circ$.

$\therefore \angle ACF=90^\circ-45^\circ=45^\circ$.

$\therefore \angle B=\angle ACF$.

$\because \angle BAC=90^\circ$，$FA\perp AE$，

$\therefore \angle BAE+\angle CAE=90^\circ$，$\angle CAF+\angle CAE=90^\circ$.

$\therefore \angle BAE=\angle CAF$.

$\therefore \triangle ABE\cong\triangle ACF$(ASA).

$\therefore BE=CF$.

(2)①如图，过点E作$EH\perp AB$于H，则$\triangle BEH$是等腰直角三角形.

$\therefore HE=BH$，$\angle BEH=45^\circ$.

$\because AE$平分$\angle BAD$，$AD\perp BC$，

$\therefore DE=HE$.$\therefore DE=BH=HE$.

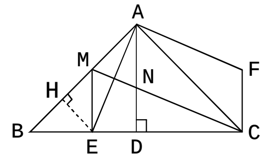
$\because BM=2DE$，$\therefore HE=HM$.

$\therefore \triangle HEM$是等腰直角三角形.

$\therefore \angle MEH=45^\circ$.

$\therefore \angle BEM=45^\circ+45^\circ=90^\circ$.

$\therefore ME\perp BC$.



（第23题图）

②由题意，得$\angle CAE=45^\circ+\frac{1}{2}\times45^\circ=67.5^\circ$.$\therefore \angle CEA=180^\circ-45^\circ-67.5^\circ=67.5^\circ$.

$\therefore \angle CAE=\angle CEA$.$\therefore AC=CE$.

又$\because CM=CM$，

$\therefore \mathrm{Rt}\triangle ACM\cong\mathrm{Rt}\triangle ECM$(HL).

$\therefore \angle ACM=\angle ECM=\frac{1}{2}\times45^\circ=22.5^\circ$，

即CM平分$\angle ACB$.

③$\because \angle DAE=\frac{1}{2}\times45^\circ=22.5^\circ$，

$\therefore \angle DAE=\angle ECM$.

$\because \angle BAC=90^\circ$，$AB=AC$，$AD\perp BC$，

$\therefore AD=CD=\frac{1}{2}BC$.

又$\because \angle ADE=\angle CDN$，

$\therefore \triangle ADE\cong\triangle CDN$(ASA).

$\therefore DE=DN$.

期中检测卷(二)

一、选择题

1~3.CBA　　4~6.DAA

二、填空题

7.3　　8.80°

9.3　　10.4

11.40　　12.50°或40°

三、

13.解：(1)$\because |a-1|+(b-3)^2=0$，

且$|a-1|\geqslant0$，$(b-3)^2\geqslant0$，

$\therefore a-1=0$，$b-3=0$.

$\therefore a=1$，$b=3$.

$\therefore 2<c<4$.

(2)证明：$\because \angle AED=\angle ABC$，$\angle AED=\angle ABE+\angle EAB$，$\angle ABC=\angle ABE+\angle DBC$，

$\therefore \angle EAB=\angle DBC$.

$\because AE=BE$，$\therefore \angle EAB=\angle ABE$.

$\therefore \angle DBC=\angle ABE$.$\therefore BD$平分$\angle ABC$.

14.解：在$\triangle ABC$中，

$\angle ABC=180^\circ-(\angle BAC+\angle C)=70^\circ$.

$\because BE$平分$\angle ABC$，

$\therefore \angle FBD=35^\circ$.

$\therefore$在$\mathrm{Rt}\triangle BFD$中，$\angle BFD=90^\circ-\angle FBD=55^\circ$.

15.证明：$\because \angle ADC=\angle1+\angle B$，

$\therefore \angle ADE+\angle2=\angle1+\angle B$.

$\because \angle1=\angle2$，$\therefore \angle ADE=\angle B$.

在$\triangle ABC$和$\triangle ADE$中，

$\begin{cases}\angle B=\angle ADE,\\ \angle C=\angle E,\\ AC=AE,\end{cases}$

$\therefore \triangle ABC\cong\triangle ADE$(AAS).

16.解：(1)$\because \triangle ABC$是等边三角形，

$\therefore \angle ACB=\angle ABC=60^\circ$.

$\because CE=CD$，

$\therefore \angle E=\angle CDE$.

又$\because \angle ACB=\angle E+\angle CDE$，

$\therefore \angle E=\frac{1}{2}\angle ACB=30^\circ$.

(2)证明：连接BD.

$\because$等边$\triangle ABC$中，D是AC的中点，

$\therefore \angle DBC=\frac{1}{2}\angle ABC=\frac{1}{2}\times60^\circ=30^\circ$.

由(1)知$\angle E=30^\circ$.

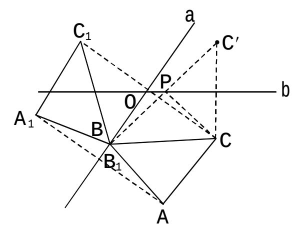
$\therefore \angle DBC=\angle E=30^\circ$.

$\therefore DB=DE$.

又$\because DM\perp BC$，

$\therefore M$是BE的中点.

17.解：(1)如图所示，$\triangle A_1B_1C_1$即为所求.



（第17题图）

(2)如图所示，点P即为所求.

四、

18.解：(1)证明：$\because$线段AB的垂直平分线与BC边交于点P，

$\therefore PA=PB$.$\therefore \angle B=\angle BAP$.

$\because \angle APC=\angle B+\angle BAP$，

$\therefore \angle APC=2\angle B$.

(2)根据题意，可知$BA=BQ$.

$\therefore \angle BAQ=\angle BQA$.

$\because \angle AQC=3\angle B$，$\angle AQC=\angle B+\angle BAQ$，

$\therefore \angle BQA=\angle BAQ=2\angle B$.

$\because \angle BAQ+\angle BQA+\angle B=180^\circ$，

$\therefore 5\angle B=180^\circ$.

$\therefore \angle B=36^\circ$.

19.解：(1)证明：$\because \angle BAD=\angle CAE$，

$\therefore \angle BAC=\angle DAE$.

在$\triangle ABC$和$\triangle ADE$中，

$\begin{cases}AB=AD,\\ \angle BAC=\angle DAE,\\ AC=AE,\end{cases}$

$\therefore \triangle ABC\cong\triangle ADE$(SAS).

$\therefore \angle C=\angle E$.

(2)由(1)知，$\triangle ABC\cong\triangle ADE$，

则$\angle ADE=\angle B$.

$\because \angle BAD=20^\circ$，$AB=AD$，

$\therefore \angle ADB=\angle B=80^\circ$.

$\therefore \angle ADE=80^\circ$.

$\therefore \angle CDF=180^\circ-\angle ADB-\angle ADE=20^\circ$.

20.解：(1)这个n边形每个内角的度数为$180^\circ-15^\circ=165^\circ$.

$\because$多边形外角和为360°，

$\therefore 15n=360$.解得$n=24$.

$\therefore$这个n边形的内角和是$(24-2)\times180^\circ=3960^\circ$.

(2)$5\times24=120$(米).

$\therefore$小亮走出的这个n边形的周长是120米.

五、

21.解：(1)设$\angle PAQ=x$，$\angle CAP=y$，$\angle BAQ=z$.

$\because MP$和NQ分别垂直平分AB和AC，

$\therefore AP=PB$，$AQ=CQ$.

$\therefore \angle B=\angle BAP=x+z$，$\angle C=\angle CAQ=x+y$.

$\because \angle BAC=80^\circ$，

$\therefore \angle B+\angle C=100^\circ$，

即$x+y+z=80^\circ$，$x+z+x+y=100^\circ$.

$\therefore x=20^\circ$.

$\therefore \angle PAQ=20^\circ$.

(2)$\because \triangle APQ$的周长为12，

$\therefore AQ+PQ+AP=12$.

$\because AQ=CQ$，$AP=PB$，

$\therefore CQ+PQ+PB=12$，

即$CQ+BQ+2PQ=12$，$BC+2PQ=12$.

$\because BC=8$，

$\therefore PQ=2$.

22.解：(1)证明：$\because BE$平分$\angle ABC$，

$\therefore \angle ABF=\angle CBF=\frac{1}{2}\angle ABC$.

$\because AB/\!/CD$，$\therefore \angle ABF=\angle E$.

$\therefore \angle CBF=\angle E$.$\therefore BC=CE$.

$\therefore \triangle BCE$是等腰三角形.

$\because F$为BE的中点，

$\therefore CF$平分$\angle BCD$，

即CG平分$\angle BCD$.

(2)$\because AB/\!/CD$，

$\therefore \angle ABC+\angle BCD=180^\circ$.

$\because \angle ABC=52^\circ$，$\therefore \angle BCD=128^\circ$.

$\because CG$平分$\angle BCD$，

$\therefore \angle GCD=\frac{1}{2}\angle BCD=64^\circ$.

$\because \angle ADE=110^\circ$，$\angle ADE=\angle CGD+\angle GCD$，

$\therefore \angle CGD=110^\circ-64^\circ=46^\circ$.

六、

23.解：(1)$\because \angle B=40^\circ$，$\angle C=62^\circ$，

$\therefore \angle BAC=180^\circ-\angle B-\angle C=180^\circ-40^\circ-62^\circ=78^\circ$.

$\because AD$是$\angle BAC$的平分线，

$\therefore \angle DAC=\frac{1}{2}\angle BAC=39^\circ$.

在$\mathrm{Rt}\triangle AEC$中，$\because \angle EAC=90^\circ-\angle C=90^\circ-62^\circ=28^\circ$，

$\therefore \angle DAE=\angle DAC-\angle EAC=39^\circ-28^\circ=11^\circ$.

(2)$\because \angle BAC=180^\circ-\angle B-\angle C$，$AD$是$\angle BAC$的平分线，

$\therefore \angle DAC=\frac{1}{2}\angle BAC=90^\circ-\frac{1}{2}(\angle B+\angle C)$.

$\because AE$是BC边上的高，

$\therefore$在$\mathrm{Rt}\triangle AEC$中，$\angle EAC=90^\circ-\angle C$.

$\therefore \angle DAE=\angle DAC-\angle EAC=90^\circ-\frac{1}{2}(\angle B+\angle C)-(90^\circ-\angle C)=\frac{1}{2}(\angle C-\angle B)$.

(3)设$\angle ACB=\alpha$.

$\because AE\perp BC$，

$\therefore \angle EAC=90^\circ-\alpha$，$\angle BCF=180^\circ-\alpha$.

$\because \angle CAE$和$\angle BCF$的平分线交于点G，

$\therefore \angle CAG=\frac{1}{2}\angle CAE=\frac{1}{2}(90^\circ-\alpha)=45^\circ-\frac{1}{2}\alpha$，$\angle BCG=\frac{1}{2}\angle BCF=\frac{1}{2}(180^\circ-\alpha)=90^\circ-\frac{1}{2}\alpha$.

$\therefore \angle G=180^\circ-\angle CAG-\angle ACG=180^\circ-\left(45^\circ-\frac{1}{2}\alpha\right)-\alpha-\left(90^\circ-\frac{1}{2}\alpha\right)=45^\circ$.

第11期

2版

14.1.1 同底数幂的乘法

1.A

2.(1)a^7；

(2)$(a-b)^5$；

(3)a^{2m+3}.

3.2

14.1.2 幂的乘方

1.A

2.(1)x^{38}；(2)$2a^{12}$；(3)a^8.

3.72

14.1.3 积的乘方

1.A　2.1

3.解：(1)原式$=-27x^3$.

(2)原式$=16x^8-x^8=15x^8$.

(3)原式$=-8x^6+9x^6+x^6=2x^6$.

4.64

14.1.4 整式的乘法(一)

第1课时

1.C

2.(1)$6x^7$；(2)$\frac{1}{3}a^3b^4c$；(3)$-40x^4$；

(4)$2x^4y^6$.

3.1，2

第2课时

1.A

2.解：(1)原式$=2a^3b^2-6a^2b^2$.

(2)原式$=-8x^3y^3+2x^2y^2+8x^3y^3=2x^2y^2$.

3.C

第3课时

1.D

2.解：(1)原式$=x^2+2x+x+2=x^2+3x+2$.

(2)原式$=x^2-xy+xy-y^2-2x+2y$

$=x^2-y^2-2x+2y$.

3.-12

3~4版

一、选择题

1~3.DCC　　4~6.ABD

二、填空题

7.x^6　　8.4

9.$\frac{1}{5}$　　10.0，8，2

11.12　　12.20或28

三、

13.解：(1)原式$=-a^8\cdot a^6=-a^{14}$.

(2)原式$=m^8+m^6-m^8=m^6$.

14.解：(1)原式$=15a^3b^2-35a^2b^3-5a^3b^3$.

(2)原式$=2m^3+3m^2-11m+3$.

15.解：(1)$2(x^2-2xy)-2x(x+2y)$

$=2x^2-4xy-2x^2-4xy$

$=-8xy$.

当$x=\frac{1}{2}$，$y=-1$时，

原式$=-8\times\frac{1}{2}\times(-1)=4$.

(2)原式$=4x^2-8x+3x-6-2(2x^2-3x-2x+3)=4x^2-5x-6-4x^2+10x-6=5x-12$.

当$x=-2$时，原式$=5\times(-2)-12=-22$.

16.解：原式$=(2a-4)x^2+(a-6)x+m-3$.

$\because$化简后不含有x^2项和常数项，

$\therefore 2a-4=0$，$m-3=0$.

解得$a=2$，$m=3$.