八年级数学(下)周末作业(十二)　五一假期作业　20250501　　1-7 BDDBDBB　8.4;3;2　9.x≥1 且 x≠2　10.-3　11.2　12.2 分之 9　13.m<3 且 m≠2 分之 3　14.1 或-2　15.2y-y 分之 3=2　16.2023　17.b-a 分之 a+b　18.x=5　19.-1　20.2.5(以 CE 为边作等边△CEH,连 FH,则△CEG≌△EFH,当 FH⊥AB,FH 小=2.5　21(1)a+b (2)x+3 分之 1 (3)x-1 分之 1 (4)x+1 分之 x (5)x+3 分之 1 (6)a+b 分之 2b　22(1)2 根号 2 (2)4 (3)9-2 根号 5　23(1)无解 (2)x=-3 分之 4 (3)x=-5　24(1)化简得 a-1 分之 a,当 a=2,原式=2 (2)5 分之 1　***<u>祝同学们假期愉快！</u>***

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(1) ①$\because xy=1$,

$\therefore \frac{1}{1+x^2}+\frac{1}{1+y^2}$

$=\frac{xy}{xy+x^2}+\frac{xy}{xy+y^2}$

$=\frac{xy}{x(y+x)}+\frac{xy}{y(x+y)}$

$=\frac{x+y}{x+y}$

$=1$;

故答案为：1

②证明：$\because xy=1$,

$\therefore x^{2021}y^{2021}=1$,

$\therefore \frac{1}{1+x^{2021}}+\frac{1}{1+y^{2021}}$

$=\frac{x^{2021}y^{2021}}{x^{2021}y^{2021}+x^{2021}}+\frac{1}{1+y^{2021}}$

$=\frac{x^{2021}y^{2021}}{x^{2021}(y^{2021}+1)}+\frac{1}{1+y^{2021}}$

$=\frac{y^{2021}}{1+y^{2021}}+\frac{1}{1+y^{2021}}$

$=\frac{y^{2021}+1}{1+y^{2021}}$

$=1$;

(2) $\because \frac{x}{y+z}+\frac{y}{z+x}+\frac{z}{x+y}=1$，且$x+y+z\neq 0$,

$\therefore \frac{x}{y+z}=1-\frac{y}{z+x}-\frac{z}{x+y}$,

$\therefore \frac{x^2}{y+z}=x-\frac{xy}{z+x}-\frac{xz}{x+y}$,

同理可得：$\frac{y^2}{z+x}=y-\frac{xy}{y+z}-\frac{yz}{x+y}$,

$\frac{z^2}{x+y}=z-\frac{xz}{y+z}-\frac{yz}{z+x}$,

$\therefore \frac{x^2}{y+z}+\frac{y^2}{z+x}+\frac{z^2}{x+y}$

$=(x-\frac{xy}{z+x}-\frac{xz}{x+y})+(y-\frac{xy}{y+z}-\frac{yz}{x+y})+(z-\frac{xz}{y+z}-\frac{yz}{z+x})$

$=x+y+z-(\frac{xy}{z+x}+\frac{xz}{x+y}+\frac{xy}{y+z}+\frac{yz}{x+y}+\frac{xz}{y+z}+\frac{yz}{z+x})$

$=x+y+z-(\frac{xz+yz}{x+y}+\frac{xy+xz}{y+z}+\frac{xy+yz}{z+x})$

$=x+y+z-[\frac{(x+y)z}{x+y}+\frac{(y+z)x}{y+z}+\frac{(x+z)y}{z+x}]$

$=x+y+z-(x+y+z)$

$=0$.

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(1)证明：$\because$四边形$ABCD$是平行四边形，

$\therefore AD/\!/BC$，$AD=BC$

,

$\because CF=BE$,

$\therefore CF+CE=BE+CE$

,

$\therefore EF=BC$,

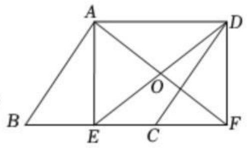
$\because AD/\!/EF$,

$\therefore$四边形$AEFD$是平行四边形，

$\because AE\perp EF$,

$\therefore \angle AEF=90^\circ$,

$\therefore$四边形$AEFD$是矩形.



(2)由（1）知：四边形$AEFD$是矩形，

$\therefore AF=DE=2OE=2\times 2=4$,

$\because AB=3$，$BF=5$,

$\therefore AB^2+AF^2=BF^2$,

$\therefore \triangle ABF$是直角三角形，

$\therefore \triangle ABF$的面积$=\frac{1}{2}BF\cdot AE=\frac{1}{2}AB\cdot AF$,

$\therefore 5\times AE=3\times 4$,

$\therefore AE=2.4$.

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(1) $\because$矩形$ABCD$中，$\angle CBA=90^\circ$,

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

即$2\angle CBE+2\angle ABE=180^\circ$，①

由旋转可得，$AB=AE$,

$\therefore \angle ABE=\angle AEB$,

$\therefore \angle BAE+2\angle ABE=180^\circ$，②

由①②可得，$\angle BAE=2\angle CBE$,

$\therefore \angle CBE=\frac{1}{2}\angle BAE$;

(2)如图，过B作$BH\perp AE$于H，则$\angle C=\angle BHE=90^\circ$

,

由（1）可得，$\angle ABE=\angle AEB$,

$\because AB/\!/CE$,

$\therefore \angle ABE=\angle CEB$,

$\therefore \angle BEC=\angle BEH$,

即BE平分$\angle CEH$,

$\therefore BH=BC$,

由旋转可得，

$AG=AD=BC$,

$\angle GAP=\angle BAD=90^\circ$,

$\therefore AG=HB$,

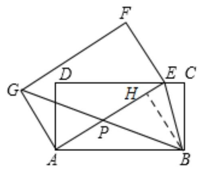
$\angle GAP=\angle BHP$,

又$\because \angle APG=\angle HPB$,

$\therefore \triangle APG\cong\triangle HPB$,

$\therefore GP=BP=\frac{1}{2}BG$,

即$BG=2PB$;



(3) $\because AB=\sqrt{41}$，$BC=3=BH$,

$\therefore Rt\triangle ABH$中，$AH=\sqrt{AB^2-BH^2}=4\sqrt{2}$,

$\because \triangle APG\cong\triangle HPB$,

$\therefore PH=AP=\frac{1}{2}AH=2\sqrt{2}$,

$\therefore Rt\triangle BHP$中，$BP=\sqrt{PH^2+BH^2}=\sqrt{17}$,

$\therefore BG=2BP=2\sqrt{17}$.

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(1) $\because$四边形$ABCD$是正方形，

$\therefore AB=AD$，$\angle BAD=\angle B=\angle D=90^\circ$,

$\because$点B关于直线AP的对称点为E,

$\therefore AB=AE$，$\angle B=\angle AEP=90^\circ$，$\angle BAP=\angle PAE$

,

$\therefore \angle AEF=\angle D=90^\circ$，$AE=AD$,

在$Rt\triangle EAF$与$Rt\triangle DAF$中，

$\begin{cases}AE=AD\\AF=AF\end{cases}$'

$\therefore$在$Rt\triangle EAF\cong Rt\triangle DAF(HL)$,

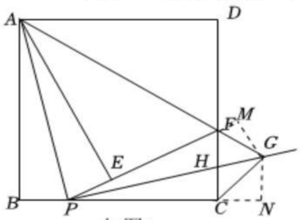
$\therefore \angle DAF=\angle EAF$,

$\therefore \angle PAE+\angle EAF=\frac{1}{2}\angle BAD=45^\circ$,

故答案为：45°;

(2)过点G作$GM\perp EF$，交EF的延长线于点M,

$HN\perp BC$，交BC的延长线于点N,



如图2

$\because$点B关于直线AP的对称点为E,

$\therefore AB=AE$，$\angle APB=\angle APE$,

$\because PG$平分$\angle FPC$,

$\therefore \angle CPG=\angle FPG$,

$\therefore \angle APG=\frac{1}{2}\angle BEC=90^\circ$,

$\because \angle PAG=45^\circ$,

$\therefore \angle PAG=\angle AGP$,

$\therefore AP=PG$,

$\because \angle APB+\angle GPN=90^\circ$，$\angle BAP+\angle APB=90^\circ$,

$\therefore \angle BAP=\angle GPN$,

$\because \angle ABP=\angle PNG=90^\circ$,

$\therefore \triangle ABP\cong\triangle PNG(AAS)$,

$\therefore BP=GN$,

$\because PG$平分$\angle CPF$，$GM\perp EF$，$GN\perp BC$,

$\therefore MG=GN$,

$\because S_{\triangle APF}=\frac{1}{2}PF\cdot AE$，$S_{\triangle PFG}=\frac{1}{2}PF\cdot GM$,

$\therefore \frac{S_{\triangle APF}}{S_{\triangle PFG}}=\frac{AE}{GM}=\frac{4}{1}=4$,

$\therefore \frac{AB}{BP}=4$,

$\because AB=3$,

$\therefore BP=\frac{3}{4}$.