安顺市关岭县2020—2021学年

第一学期基础教育教学质量监测卷

九年级数学 参考答案及评分标准

一、选择题(本大题共10小题，每小题3分，共30分)

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

二、填空题(本大题共5小题，每小题4分，共20分)

11. 12. 8 13. *x*1＝6，*x*2＝2 14. 2 15.

三、解答题(本大题共10小题，共100分)

16.解：(1)移项，得4*x*28*x*＝3．

方程两边都除以4，得*x*22*x*．

方程两边都加1，得*x*22*x*+11．

配方，得(*x*1)2＝．

开平方，得*x*1＝．

∴*x*＝1，

∴*x*11，*x*21． ·································································4分

(2)移项，得(*x*+3)25(*x*+3)＝0．

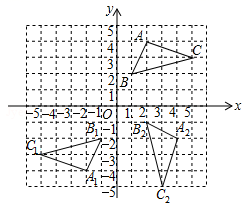
∴(*x*+3)(*x*+35)＝0，

∴(*x*+3)(*x*2)＝0，

∴*x*1＝3，*x*2＝2． ············································································8分

17.解：(1)如图所示，△*A*1*B*1*C*1即为所求． ·······················································3分

(2)如图所示，△*A*2*B*2*C*2即为所求． ·····························································5分



*A*2(4，2)，*B*2(2，1)，*C*2(3，5)． ·······················································8分

18.(1)证明：∵*CD*⊥*AB*，∴，

∴∠*AGD*＝∠*ADC*． ················································································2分

∵四边形*ADCG*是*O*的内接四边形，

∴∠*FGC*＝∠*ADC*，

∴∠*FGC*＝∠*AGD*． ···············································································4分

(2)解：如图，连接*OD*．

∵*CD*⊥*AB*，*CD*＝4，

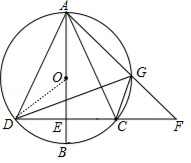
∴*DE*＝*CE*＝2． ····················································································6分

在Rt△*DOE*中，∵*OD*2＝*OE*2+*DE*2，

∴*OD*2＝(*OD*1)2+22，解得*OD*＝， ························································8分

∴*AE*＝2*ODBE*＝51＝4，

∴*AD*． ··················································10分



19.解：(1)设每年绿化面积的平均增长率为*x*．

由题意，得1200(1+*x*)2＝1587． ····························································3分

解得*x*1＝0.15， *x*2＝2.15(不合题意，舍去)． ········································5分

所以每年绿化面积的平均增长率为15%． ·····················································6分

(2) 1587×(1+15%)＝1825.05(万平方米)．

所以2021年的绿化面积是1825.05万平方米． ·············································10分

20.解：(1)(4，5) ··················································································2分

(2)设抛物线的函数解析式为*y*＝*ax*2．

将点*B*(4，5)代入*y*＝*ax*2，得5＝*a*×42，解得*a*．

∴抛物线的函数解析式为*yx*2． ····················································6分

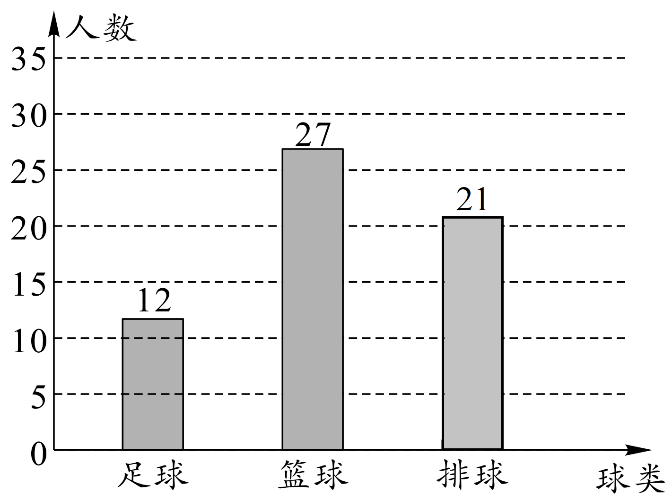
(3)将*x*＝2代入*yx*2，得*y*．

∵2，而1.8＜2，

∴当水面离拱顶1.8 m时，木船不能通过这座拱桥． ·····································10分

21.解：(1)此次调查的学生总人数为12÷20%＝60(人)． ·······························2分

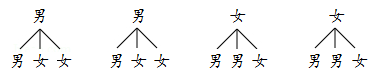
喜爱排球运动的学生人数为60×35%＝21(人)，补全条形统计图如下： ···········4分



(2)500×(135%20%)＝225(人)，

估计该中学九年级学生中喜爱篮球运动的学生有225人． ·······························6分

(3)画树状图如下：

 ··························8分

由图可知，所有可能出现的结果共有12种，且这些结果出现的可能性相等，其中抽取的两人恰好是1名男生和1名女生的结果有8种，

∴*P*(抽取的两名学生恰好为1名男生和1名女生)． ·························10分

22.解：(1)由题意，得*y*＝(*x*5)[100 (*x*6)÷0.5×5]＝10*x*2+210*x*800，

∴*y*与*x*的函数关系式为*y*＝10*x*2+210*x*800． ············································3分

(2)∵每件文具的利润不超过80%，

∴*x*5≤5×80%，解得*x*≤9，

∴文具的售价*x*的取值范围是6≤*x*≤9，且*x*是0.5的倍数． ·····························6分



由(1)得*y*＝10*x*2+210*x*800＝10(*x*10.5)2+302.5． ·······································8分

∵此抛物线开口向下，对称轴为直线*x*＝10.5，

∴当6≤*x*≤9时，*y*随*x*的增大而增大，

∴当*x*＝9时，*y*取得最大值，此时*y*＝10(910.5)2+302.5＝280．

故要想获得最大日销售利润，每件文具的售价为9元，最大利润为280元． ········10分

23.解：(1)*DE*＝*BE*． ··················································································1分

理由如下：由旋转可知，*AD*＝*AE*，∠*DAE*＝60°，

∴△*ADE*为等边三角形，

∴*DE*＝*AE*，∠*AED*＝60°． ·······································································3分

∵∠*ABC*＝30°，∠*AED*＝∠*ABC*+∠*EAB*，

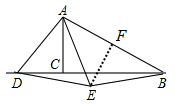
∴∠*EAB*＝60°30°＝30°，

∴∠*ABC*＝∠*EAB*，∴*BE*＝*AE*，

∴*DE*＝*BE*． ····························································································5分

(2)图2、图3中结论仍成立． ···································································6分

选择图2证明如下：如图，过点*E*作*EF*⊥*AB*，垂足为*F*．



在Rt△*ABC*中，∠*ACB*＝90°，∠*ABC*＝30°，∴∠*CAB*＝60°，

∴∠*DAE*＝∠*CAB*，∴∠*DAE*∠*CAE*＝∠*CAB*∠*CAE*，

即∠*CAD*＝∠*EAF*． ·················································································7分

又∵*AD*＝*AE*，∠*ACD*＝∠*AFE*＝90°，

∴△*ADC*≌△*AEF*(AAS)，∴*AC*＝*AF*． ························································8分

在Rt△*ABC*中，∠*ABC*＝30°，∴*ACAB*，∴*AFAB*．

又∵*EF*⊥*AB*，∴*AE*＝*BE*． ······································································9分

由(1)知*AE*＝*DE*，∴*DE*＝*BE*． ··························································10分

**注：若选择图3，证明方法同图2．**

24.(1)证明：如图，连接*OD*，*CD*．

∵*OC*＝*OD*，∴∠*OCD*＝∠*ODC*．

又∵*BC*是⊙*O*的直径，∴∠*BDC*＝∠*ADC*＝90°，

∴△*ACD*是直角三角形． ········································································3分

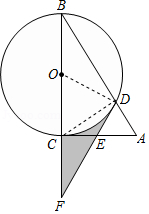
又∵*E*是*AC*的中点，∴*EC*＝*ED*，

∴∠*ECD*＝∠*EDC*．

又∵∠*ECD*+∠*OCD*＝∠*ACB*＝90°，

∴∠*EDC*+∠*ODC*＝∠*ODE*＝90°，

∴直线*DE*是⊙*O*的切线． ········································································6分



(2)解：由(1)可知∠*ODF*＝90°．

∵∠*B*＝30°，∴∠*DOF*＝60°，∴∠*F*＝30°． ···············································8分

在Rt△*ABC*中，*AC*＝2，∠*B*＝30°，∴*AB*＝4，

∴*BC*，∴．

在Rt△*ODF*中，∠*F*＝30°，∴*OF*＝2*OD*＝，

∴， ·······································································10分

∴阴影部分的面积为． ·····························12分

25.解：(1)∵*B*(1，0)，∴*OB*＝1．

∵*OC*＝2*OB*＝2，∴*BC*＝3，*C*(2，0)．

在Rt△*ABC*中，*AC*＝2*BC*，

∴*AC*＝6，∴*A*(2，6)． ···········································································2分

把*A*(2，6)，*B*(1，0)代入*y*＝*x*2+*bx*+*c*，

得解得

∴抛物线的函数解析式为*y*＝*x*23*x*+4． ····················································4分

(2)①设直线*AB*的函数解析式为*y*＝*kx*+*n*．

把*A*(2，6)，*B*(1，0)代入*y*＝*kx*+*n*，

得解得

∴直线*AB*的函数解析式为*y*＝2*x*+2． ························································6分

设*P*(*a*，*a*23*a*+4)，则*E*(*a*，2*a*+2)．

∴*PE*＝*a*23*a*+4 (2*a*+2)＝*a*2*a*+2＝． ······························7分

当*a*时，*PE*的最大值为，此时*P*． ·····································8分

②在直线*PD*上存在点*M*，使点*M*在以*AB*为直径的圆上．

理由：∵点*M*在直线*PD*上，且*P*，

∴设*M*，则*AM*2＝2+(*m*6)2，*BM*2＝2+*m*2，*AB*2＝32+62＝45．

∵点*M*在以*AB*为直径的圆上，∴∠*AMB*＝90°， ········································10分

∴*AM*2+*BM*2＝*AB*2，

即2+(*m*6)2+2+*m*2＝45，

解得*m*1，*m*2．

∴*M*或*M*． ·················································12分

