# 杭州养正学校

# 2019学年第一学期

# 数学寒假作业答案

# （$QQYZ,CSH$贡献版本）

## 1.1

$1-5:BDDCB$

$x\geq 3$

任意实数

$\sqrt{3}$

$m\geq 9$

$6$

$x\leq -\frac{2}{3}$；$x$为任意实数；$x\leq 0$且$x\neq 2$

$0$

$\sqrt{10};\sqrt{6};4$

$10$

$\sqrt{4x^2+100};26km$

$-6$

## 1.2.1

$BDDABA$

$2;0.3;27;0;\frac{1}{5}$

$-5;5;-5;5$

$\sqrt{17}-4;0$

$-2a$

$1 \leq x \leq 4$

$\frac{4}{13};\frac{1}{8};\frac{1}{25};-2$

$2-\sqrt{3};3;13;\frac{1}{5};0.06;-3\sqrt{3}$

$2$

$2015$

# 1.2.2

$DBDBCD$

$4\sqrt{3};\frac{1}{3}\sqrt{15}$

$3\sqrt{3}$

$x \geq 3;x>5$

$3\sqrt{5};\frac{\sqrt{6}}{3};\frac{9}{10}\sqrt{10};0.14$

$10\sqrt{3};10a^2b^2c^2\sqrt{2a};72;5$

$32\sqrt{2}$

成立；$\sqrt{\frac{n^3}{n^2-1}}=n\sqrt{\frac{n}{n^2-1}}$

$\sqrt{4+\frac{1}{6}}=5\sqrt{\frac{1}{6}};\sqrt{n+\frac{1}{n+2}}=(n+1)\sqrt{\frac{1}{n+2}}$

# 1.3.1

$CBDAC$

$3\sqrt{2};-36;1;\frac{3}{5}$

$8\sqrt{3};1$

$6$

$x=-\frac{1}{2}\sqrt{6};\frac{3}{2}$

$10\sqrt{2}$

$\frac{2}{3}\sqrt{6}$

$-\frac{\sqrt{3}}{3}$

$6$

$\sqrt{3}$

## 1.3.2

$CDDCB$

$-\sqrt{2};4\sqrt{a};-\frac{3}{2}\sqrt{2}b;2$

$2\sqrt{2}-2$

$\frac{2}{3}\sqrt{3};\frac{9}{2}\sqrt{6};-2\sqrt{2};1$

$6-6\sqrt{2};\frac{3}{2}\sqrt{5}-4;4;56\sqrt{14}$

$6\sqrt{5}$

$-\sqrt{3}$

$13\sqrt{5}-28$

## 1.3.3

$C$

$89.4 \quad 2\sqrt{65} \quad 4\sqrt{15}\,\mathrm{m}^2 \quad 3+\sqrt{3}$

$\sqrt{3}+\frac{3}{4} \quad \frac{21}{2}$

$\pm 1$

受影响；$6.4h$

$\sqrt{x^2-16x+89}+\sqrt{x^2+81};4\sqrt{65};13$

# $Ch1$

$DCCCCCDBBD$

$\pm 1;\sqrt{6} \quad -7-5\sqrt{2} \quad 5 \quad (x^2+3)(x+\sqrt{3})(x-\sqrt{3}) \quad -x\sqrt{y}$

$1\leqslant x\leqslant 4 \quad \geq 0,\ \neq 9 \quad x=3+2\sqrt{2} \quad < \quad \frac{6}{5}\sqrt{15}$

$\sqrt{2}$倍

$\frac{9}{5}\sqrt{2}+3;-\frac{5}{7};\frac{5}{4}y^2\sqrt{x};4\sqrt{10}$

$\sqrt{2}+1$

$\sqrt{2}$

$\sqrt{7}-\sqrt{6};3\sqrt{2}-\sqrt{17};\sqrt{n+1}-\sqrt{n};3+\sqrt{2}$

斜边：$2\sqrt{33}$　　高：$\frac{31\sqrt{33}}{33}$

$\frac{\sqrt{-a}}{a^2};-\sqrt{1-a};xy\sqrt{y};\sqrt{5}-1$

$9+2\sqrt{10};7-4\sqrt{3}$

# 2.1

$C$

| $3x^2-8x-10=0$ | $3$ | $-8$ | $-10$ |
|---|---|---|---|
| $x^2+x-6=0$ | $1$ | $1$ | $-8$ |

| :-: | :-: | :-: | :-: |
|---|---|---|---|
| $-7x^2+4=0$ | $-7$ | $0$ | $4$ |
| $-x^2-2x-3=0$ | $-1$ | $-2$ | $-3$ |

$m\neq-1$　　$8$　$CCA$　$1$　$1$

$-2$　$CC$　$=\pm1$　$-2$　$a=-\frac{1}{3},b=3$

$m=1,x_1=\frac{1+\sqrt{3}}{2},x_2=\frac{1-\sqrt{3}}{2};m=0/-1$

$-6$

# 2.2.1

$y_1=0,y_2=3;x_1=\frac{3}{2},x_2=-\frac{3}{2};x_1=0,x_2=2;x_1=x_2=\frac{1}{3}$

$x_1=0,x_2=7;x_1=\frac{1}{9},x_2=\frac{1}{5};x_1=x_2=2\sqrt{2}$

$x_1=2,x_2=-\frac{1}{3}$

$x_1=0,x_2=3$

$15\qquad B$

$x_1=1,x_2=3;x_1=\frac{1}{2},x_2=\frac{7}{2};x_1=x_2=\sqrt{3}$

$x_1=0,x_2=\frac{3}{2};m_1=2,m_2=4;x_1=\frac{7}{4},x_2=\frac{5}{2};x_1=0,x_2=\frac{17}{3}$

$x_1=x_2=-6\qquad 2\quad 4\qquad \frac{7}{5}$或$-7$

## 2.2.2

$36;4,2;16,4;\frac{1}{36},\frac{1}{6};\frac{9}{8},\frac{3}{4};1,2$

$x_1=16,x_2=-16;x_1=11,x_2=-1;x_1=3,x_2=-3;x_1=2\sqrt{3}-1,x_2=-2\sqrt{3}-1$

$BAD\qquad y_1=-3+3\sqrt{5},y_2=-3-3\sqrt{5}$

$\frac{4}{5};-\frac{4}{5}$

$x_1=-1,x_2=-9;x_1=\frac{1}{2}+\sqrt{2},x_2=\frac{1}{2}-\sqrt{2}$

$x_1=\frac{\sqrt{2}}{2},x_2=-\frac{\sqrt{2}}{2};x_1=2\sqrt{2}+1,x_2=-2\sqrt{2}+1$

$x_1=2\sqrt{2}+1,x_2=-2\sqrt{2}+1;x_1=-\frac{3}{2}-\frac{1}{5}\sqrt{15},x_2=-\frac{3}{2}+\frac{1}{5}\sqrt{15};$

$x_1=3\sqrt{3}+\frac{1}{2},x_2=-3\sqrt{3}+\frac{1}{2};x_1=-2+2\sqrt{3},x_2=-2-2\sqrt{3}$

$x_1=\frac{3+\sqrt{10}}{2},x_2=\frac{3-\sqrt{10}}{2};x_1=\frac{\sqrt{10}-1}{3},x_2=\frac{-\sqrt{10}-1}{3}$

$x=1,y=-\frac{1}{3}\quad \frac{3}{4}$

## 2.2.3

$\pm3\ \ DC\ \ 2,-4,-3$

$m_1=-1,m_2=-9;x_1=\dfrac{3\sqrt{21}+1}{2},x_2=\dfrac{-3\sqrt{21}+1}{2};$

$x_1=6,x_2=-2;t_1=\dfrac{\sqrt{21}}{3}-1,t_2=-\dfrac{\sqrt{21}}{3}-1;$

$x_1=\dfrac{5}{2},x_2=-\dfrac{1}{2};x_1=-\dfrac{1}{2},x_2=-\dfrac{7}{2}$

$24/8\sqrt{5}$ $x_1=1,x_2=-\dfrac{2}{3}$

$x_1=\dfrac{\sqrt{14}}{2}+2,x_2=-\dfrac{\sqrt{14}}{2}+2;x_1=\sqrt{6}-2,x_2=-\sqrt{6}-2;$

$x_1=-\dfrac{3}{2},x_2=0;x_1=\dfrac{2\sqrt{3}}{3}+1,x_2=-\dfrac{2\sqrt{3}}{3}+1$

$\pm8,4,\pm2$ $-\dfrac{3}{2}$ $n_1=\sqrt{3}+2,n_2=-\sqrt{3}+2$

证明略 $-1$ $-1$

## 2.2.4

$c>9$ $DA$

$x_1=1,x_2=-\dfrac{5}{2};x_1=-2,x_2=-\dfrac{7}{4};$

$x_1=\dfrac{7}{2},x_2=1;y_1=0,y_2=-2$

有两个相等的实根；无实根；有两个不相等的实根；有两个实根，$m=2$时两个实根相等

$4$ $k<4$

$x_1=\dfrac{3}{2},x_2=\dfrac{3}{2};x_1=4+\sqrt{10},x_2=4-\sqrt{10};$

$x_1=\dfrac{1}{5},x_2=\dfrac{4}{5};x_1=\dfrac{7+\sqrt{33}}{4},x_2=\dfrac{7-\sqrt{33}}{4}$

$D$ $a\geq-1$

方程无实根；$x_1=-3,x_2=1$

## 2.3.1

$BBD$ $m(1+x),m(1+x)^2,m(x^2+3x+3)$

$41\%$ $50+50p;10\%$

$B$ $15+15(1+x)+15(1+x)^2=60$ 1 $3200(1-x)^2=2500$

平均一台电脑感染8台电脑，会超过700台

## 2.3.2

$32cm$ $B$ $64$ $2s$ $2\sqrt{2}+\sqrt{7}, 2\sqrt{2}-\sqrt{7}$

$A$ 可以达到$180m^2, 200m^2$，不可以达到$210m^2$

上口宽$2.8m$,渠底宽$1.2m$ 耗时$25$天

$100$海里 $118.4$海里

## 2.4

$\frac{3}{2}$ $-3, 2$ $B$ $-1$ $m \leqslant \frac{1}{4}; m = \frac{1}{4}$

$AC$ $10$ $2$ $x_1 = m - p + 2, x_2 = p; S_{max} = \frac{1}{8}m^2 + \frac{1}{2}m + \frac{1}{2}$

$BD$

# $Ch2$

$CCAB$ $b^2 - 4ac \geq 0$ $-\frac{b}{a}, \frac{c}{a}$

$-p, q$ $x^2 - (m+n)x + mn = 0$ $3$ $-2$ $8$ $x_1 = -1, x_2 = 3$

$\sqrt{2}$ $2$ $(75-x)(40-x) = 2400$ $4x^2 - 280x + 3300 = 0$

$12$ $3$ $\frac{3}{4} < m \leqslant 1$

$m = \frac{5}{4}; m = \frac{27}{16}; m = -2$

证明略

$28cm, 12cm$两段；正确

$10m$ $7$ $m \leq \frac{1}{2}, m \neq 0$

$p = -1, q = -3;$ $2h$后可以侦察到