35.17.

$$w=\frac{3+4i\sqrt{z^2+1}}{3i+4\sqrt{z^2+1}}.$$

35.18.

1. $\operatorname{Im} w=0,\ -1<\operatorname{Re} w<1.$
2. $\operatorname{Im} w=0,\ -\frac{\sqrt{2}}{2}<\operatorname{Re} w<\frac{\sqrt{2}}{2}.$
3. $\frac{16}{25}u^2+\frac{16}{9}v^2=1\quad(u=\operatorname{Re} w,\ v=\operatorname{Im} w).$
4. $\frac{16}{25}u^2+\frac{16}{9}v^2=1\quad(u=\operatorname{Re} w,\ v=\operatorname{Im} v).$
5. $u^2-v^2=1/2,\ u>0\quad(u=\operatorname{Re} w,\ v=\operatorname{Im} v).$
6. $u^2-v^2=1/2,\ u<0\quad(u=\operatorname{Re} w,\ v=\operatorname{Im} w).$

35.19.

1. $\frac{16}{25}u^2+\frac{16}{9}v^2>1\quad(u=\operatorname{Re} w,\ v=\operatorname{Im} w).$
2. $\frac{16}{25}u^2+\frac{16}{9}v^2>1\quad(u=\operatorname{Re} w,\ v=\operatorname{Im} w).$
3. $u^2-v^2<1/2(u=\operatorname{Re} w,\ v=\operatorname{Im} w).$
4. $u^2-v^2<1/2,\quad w\notin[-i\infty,\ 0]\quad(u=\operatorname{Re} w,\ v=\operatorname{Im} w).$
5. $w\notin[-1,\ +\infty].$ 6. $w\notin\left[-\frac{5}{4},\ +\infty\right].$
7. $w\notin\left[-\infty,\ -\frac{\sqrt{2}}{2}\right],\quad w\notin\left[\frac{\sqrt{2}}{2},\ +\infty\right].$
8. $\operatorname{Im} w>0,\quad w\notin\left[0,\ \frac{3i}{4}\right].$ 9. $-\frac{\pi}{2}<\arg w<0.$
10. $u^2-v^2<\frac{1}{2},\quad v>0\quad(u=\operatorname{Re} w,\ v=\operatorname{Im} w).$

35.20.

1. $|w|<a-\sqrt{a^2-1},$ 2. $\alpha<\arg w<\pi-\alpha,\ \alpha=\arcsin\sqrt{1-a^2}.$
3. $\operatorname{Im} w>0.$ 4. $|w|>1.$
5. $|w|<1,\quad \operatorname{Im} w<0.$ 6. $1<|w|<a+\sqrt{a^2-1},\ \operatorname{Im} w>0.$
7. $|w|<1,\ -\alpha<\arg w<0.$ 8. $a-\sqrt{a^2-1}<|w|<1.$
9. $b+\sqrt{1+b^2}<|w|<a+\sqrt{1+a^2}.$

35.22.

1. Fig. 52 : $w=i\frac{2+\sqrt{z^2+4}}{z}.$ 2. Fig. 53 : $w=z-1+\sqrt{z^2-2z-8}.$
3. Fig. 54 : $w=\sqrt{\frac{2z^2+5z+2}{-z^2+2z-1}}.$
4. Fig. 55 : $w=\sqrt{\frac{2z^2+5z+2}{-2z^2+5z-2}}.$ 5. Fig. 56 : $w=\sqrt{\frac{2z^2+5z+2}{z}}.$

6. Fig. 57 : $w=i\frac{z-1}{\sqrt{z}}.$ 7. Fig. 58 : $w=\sqrt{\frac{z^2+10z+16}{z^2+17z+16}}.$
8. Fig. 59 : $w=\frac{\sqrt{z^2+1}}{z-1}.$ 9. Fig. 60 : $w=\sqrt{1+\frac{z^2(1-h^2)^2}{h^2(1+z^2)^2}}.$
10. Fig. 61 : $w=\sqrt{1+\frac{z^4(1-h^4)^2}{h^4(1+z^4)^2}}.$
11. Fig. 62 : $w=\sqrt{1+\frac{z^{\pi/\alpha}(1-h^{\pi/\alpha})^2}{h^{\pi/\alpha}(1+z^{\pi/\alpha})^2}}.$
12. Fig. 63 : $w=\frac{1}{\zeta-1}\sqrt{\frac{2\sqrt{2}\zeta}{\sqrt{3}}-\zeta^2-4\zeta-1},\ \zeta=\frac{i}{3}(z+\sqrt{z^2+3}).$
13. Fig. 64 : $w=(z+\sqrt{z^2-1})^{\pi/\alpha}+(z-\sqrt{z^2-1})^{\pi/\alpha},\ \alpha=\operatorname{arctg}\frac{\sqrt{2}}{2}.$
14. Fig. 65 : $w=i\left[(z+\sqrt{z^2-1})^{\pi/2\alpha}-(z-\sqrt{z^2-1})^{\pi/2\alpha}\right],\ \alpha=\operatorname{arctg}\frac{\sqrt{2}}{2}.$
15. Fig. 66 : $w=(z+\sqrt{z^2-1})^{\pi/\alpha},\ \alpha=\operatorname{arctg}\frac{\sqrt{2}}{2}.$
16. Fig. 67 : $w=\sqrt{h^2(1+h^2)-z^2(z^2-1)}.$

35.23.

1. Fig. 68 : $w=\frac{z^2+i(z^2-1)\sqrt{z^4-1}}{z^4-z^2+1}.$
2. Fig. 69 : $w=\frac{3\zeta-2i(\zeta+1)\sqrt{\zeta^2-\zeta+1}}{2\zeta^2+\zeta+2},\quad \zeta=(-iz)^{2/3}.$
3. Fig. 70 : $w=\frac{3\zeta-2i(1-\zeta)\sqrt{\zeta^2+\zeta+1}}{2\zeta^2-\zeta+2},\quad \zeta=\left(i\frac{z+1}{z-1}\right)^{2/3}.$
4. Fig. 71 : $w=\frac{\zeta-2i(\zeta-1)\sqrt{\zeta^2-\zeta+1}}{2\zeta^2-3\zeta+2},\quad \zeta=\left(\frac{1-iz}{z-i}\right)^{2/3}.$
5. Fig. 72 : $w=\frac{\zeta-2i(\zeta-1)\sqrt{\zeta^2-\zeta+1}}{2\zeta^2-3\zeta+2},\quad \zeta=\left(\frac{1-iz^2}{z^2-i}\right)^{2/3}.$
6. Fig. 73 : $w=\frac{z^2+2iz+1}{z^2-2iz+1}.$
7. Fig. 74 : $w=\frac{\zeta^2+2i\zeta+1}{\zeta^2-2i\zeta+1},\quad \zeta=(3-2\sqrt{2})\left(\frac{z+1}{z-1}\right)^2.$
8. Fig. 75 : $w=\frac{\zeta^3-2\zeta^{3/2}-1}{\zeta^3+2\zeta^{3/2}-1},\quad \zeta=\frac{(2-\sqrt{3})z+i}{z+(2-\sqrt{3})i}.$

35.24.

$$w=\frac{2i(1+z^2)-3z}{3iz-2(1+z^2)}.$$