#11

Converting between the Forms Practice

Show all work on a separate sheet of paper.

I. Rewrite each equation in general form.

1) $(x-8)^2+(y+10)^2=64$

2) $(x+6)^2+y^2=100$

3) $(x-7)^2+(y-7)^2=36$

4) $x^2+(y-3)^2=9$

II. Rewrite each equation in standard form.

5) $x^2+y^2-2x+8y-8=0$

6) $x^2+y^2+12x+4y+39=0$

7) $x^2+y^2+14x-2y+41=0$

8) $x^2+y^2-4y-77=0$

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1) $(x-8)^2+(y+10)^2=64$

$(x-8)(x-8)+(y+10)(y+10)=64$

$x^2-8x-8x+64+y^2+10y+10y+100=64$

$x^2-16x+164+y^2+20y=64$

$\boxed{x^2+y^2-16x+20y+100=0}$

2) $(x+6)^2+y^2=100$

$(x+6)(x+6)+y^2=100$

$x^2+6x+6x+36+y^2=100$

$x^2+12x+36+y^2=100$

$\boxed{x^2+y^2+12x-64=0}$

3) $(x-7)^2+(y-7)^2=36$

$(x-7)(x-7)+(y-7)(y-7)=36$

$x^2-7x-7x+49+y^2-7y-7y+49=36$

$x^2-14x+98+y^2-14y=36$

$\boxed{x^2+y^2-14x-14y+62=0}$

4) $x^2+(y-3)^2=9$

$x^2+(y-3)(y-3)=9$

$x^2+y^2-3y-3y+9=9$

$x^2+y^2-6y+9=9$

$\boxed{x^2+y^2-6y=0}$

5) $x^2+y^2-2x+8y-8=0$

$(x^2-2x+\underline{1})+(y^2+8y+\underline{16})=8+\underline{1+16}$

$(\frac{-2}{2})^2=(-1)^2=1 \qquad (\frac{8}{2})^2=(4)^2=16$

$\boxed{(x-1)^2+(y+4)^2=25}$

6) $x^2+y^2+12x+4y+39=0$

$(x^2+12x+\underline{36})+(y^2+4y+\underline{4})=-39+\underline{36+4}$

$(\frac{12}{2})^2=(6)^2=36 \qquad (\frac{4}{2})^2=(2)^2=4$

$\boxed{(x+6)^2+(y+2)^2=1}$

7) $x^2+y^2+14x-2y+41=0$

$(x^2+14x+\underline{49})+(y^2-2y+\underline{1})=-41+\underline{49+1}$

$(\frac{14}{2})^2=(7)^2=49 \qquad (\frac{-2}{2})^2=(-1)^2=1$

$\boxed{(x+7)^2+(y-1)^2=9}$

8) $x^2+y^2-4y-77=0$

$(x^2+\underline{0})+(y^2-4y+\underline{4})=77+\underline{0+4}$

$(\frac{0}{2})^2=(0)^2=0 \qquad (\frac{-4}{2})^2=(-2)^2=4$

$\boxed{x^2+(y-2)^2=81}$