Convert to a Standard LP if necessary. Write down the Canonical Form.

1) Minimize $z = 6x - 10y$

$$\begin{array}{rcrcl} 8x & + & 8y & = & 5 \\ 7x & - & 9y & \geq & 5 \end{array}$$

$x \geq 0$

2) Minimize $z = 3x + 5y$

$$\begin{array}{rcrcl} 10x & - & 3y & \leq & 4 \\ 3x & + & 3y & = & 6 \end{array}$$

$x \geq 0$, $y \geq 0$

3) Minimize $z = 7x + 5y$

$$\begin{array}{rcrcl} 7x & - & 4y & \geq & 4 \\ 8x & + & 6y & \geq & 5 \end{array}$$

$x \geq 0$, $y \geq 0$

4) Minimize $z = 10x + 5y$

$$\begin{array}{rcrcl} 9x & - & 8y & \geq & 10 \\ 5x & - & 1y & \leq & 3 \end{array}$$

$x \geq 0$

5) Minimize $z = 10x - 7y$

$$\begin{array}{rcrcl} 3x & + & 7y & = & 6 \\ 6x & - & 9y & = & 4 \end{array}$$

$x \geq 0$

6) Maximize $z = 4x - 3y$

$$\begin{array}{rcrcl} 9x & - & 8y & \geq & 8 \\ 9x & - & 5y & \leq & 2 \end{array}$$

$y \geq 0$

7) Minimize $z = 4x + 4y$

$$\begin{array}{rcrcr} 5x & - & 3y & = & 9 \\ 10x & + & 10y & \leq & 10 \end{array}$$

$x \geq 0$

8) Minimize $z = 3x + 5y$

$$\begin{array}{rcrcr} 4x & + & 9y & = & 1 \\ 10x & - & 7y & = & 5 \end{array}$$

$x \geq 0$, $y \geq 0$

9) Minimize $z = 1x + 9y$

$$\begin{array}{rcrcr} 5x & - & 4y & \geq & 8 \\ 3x & + & 7y & \geq & 9 \end{array}$$

$x \geq 0$, $y \geq 0$

10) Maximize $z = 1x - 9y$

$$\begin{array}{rcrcr} 1x & + & 9y & \geq & 5 \\ 3x & - & 10y & \geq & 9 \end{array}$$

$x \geq 0$

11) Maximize $z = 5x + 8y$

$$\begin{array}{rcrcr} 9x & - & 2y & \geq & 2 \\ 8x & + & 4y & \leq & 8 \end{array}$$

$x \geq 0$, $y \geq 0$

12) Minimize $z = 8x - 7y$

$$\begin{array}{rcrcr} 10x & - & 1y & \leq & 3 \\ 8x & + & 10y & \geq & 1 \end{array}$$

$y \geq 0$

13) Minimize $z = 9x + 5y$

$$\begin{array}{rcrcl} 10x & + & 7y & \leq & 8 \\ 1x & - & 2y & \geq & 5 \end{array}$$

$y \geq 0$

14) Maximize $z = 4x - 3y$

$$\begin{array}{rcrcl} 5x & + & 3y & \geq & 5 \\ 10x & - & 4y & \geq & 7 \end{array}$$

$x \geq 0$

15) Maximize $z = 2x - 7y$

$$\begin{array}{rcrcl} 7x & - & 7y & = & 5 \\ 10x & + & 3y & \leq & 2 \end{array}$$

$x \geq 0,\ y \geq 0$

Solve graphically.

1. Maximize $z = 10x + 5y$

$$\begin{array}{rcrcl} 10x & - & 7y & \leq & 7 \\ 9x & + & 3y & \leq & 7 \end{array}$$

$x, y \geq 0$

2. Maximize $z = 10x - 9y$

$$\begin{array}{rcrcl} 2x & - & 7y & \leq & 6 \\ 4x & - & 2y & \leq & 4 \end{array}$$

$x, y \geq 0$

3. Maximize $z = 6x + 5y$

$$\begin{array}{rcrcl} 8x & - & 10y & \leq & 2 \\ 6x & - & 9y & \leq & 8 \end{array}$$

$x, y \geq 0$

4. Maximize $z = 2x - 1y$

$$\begin{array}{rcrcr} 6x & + & 9y & \leq & 10 \\ 6x & - & 2y & \leq & 1 \end{array}$$

$x, y \geq 0$

5. Maximize $z = 6x - 6y$

$$\begin{array}{rcrcr} 3x & + & 6y & \leq & 3 \\ 2x & + & 4y & \leq & 6 \end{array}$$

$x, y \geq 0$

6. Maximize $z = 7x - 5y$

$$\begin{array}{rcrcr} 1x & + & 10y & \leq & 6 \\ 4x & + & 2y & \leq & 10 \end{array}$$

$x, y \geq 0$

7. Maximize $z = 7x + 4y$

$$\begin{array}{rcrcr} 6x & - & 3y & \leq & 9 \\ 8x & + & 5y & \leq & 8 \end{array}$$

$x, y \geq 0$

8. Maximize $z = 6x - 1y$

$$\begin{array}{rcrcr} 6x & - & 4y & \leq & 2 \\ 4x & + & 4y & \leq & 8 \end{array}$$

$x, y \geq 0$

9. Maximize $z = 7x - 3y$

$$\begin{array}{rcrcr} 1x & + & 6y & \leq & 1 \\ 1x & + & 7y & \leq & 9 \end{array}$$

$x, y \geq 0$

10. Maximize $z = 2x + 3y$

$$\begin{array}{rcrcr} 9x & - & 10y & \leq & 10 \\ 6x & + & 7y & \leq & 6 \end{array}$$

$x, y \geq 0$

11. Maximize $z = 7x - 9y$

$$\begin{array}{rcrcr} 8x & - & 9y & \leq & 3 \\ 5x & - & 8y & \leq & 10 \end{array}$$

$x, y \geq 0$

12. Maximize $z = 6x - 6y$

$$\begin{array}{rcrcr} 2x & + & 8y & \leq & 8 \\ 8x & - & 5y & \leq & 9 \end{array}$$

$x, y \geq 0$

13. Maximize $z = 8x + 5y$

$$\begin{array}{rcrcr} 10x & + & 8y & \leq & 7 \\ 7x & + & 7y & \leq & 2 \end{array}$$

$x, y \geq 0$

14. Maximize $z = 8x + 1y$

$$\begin{array}{rcrcr} 2x & + & 10y & \leq & 8 \\ 6x & - & 8y & \leq & 1 \end{array}$$

$x, y \geq 0$

15. Maximize $z = 1x - 6y$

$$\begin{array}{rcrcr} 1x & - & 3y & \leq & 8 \\ 2x & + & 3y & \leq & 2 \end{array}$$

$x, y \geq 0$