Find # hours each machine to fill contract and minimize cost?

Min Cost?

Let \( x = \# \) hours for Machine I
\( y = \# \) hours for Machine II

Minimize: \( C = 28x + 33y \)

Objective function

Subject to:

\( 3x + 4y \geq 60 \)
\( 10x + 5y \geq 100 \)
\( x \geq 0 \)
\( y \geq 0 \)

Shade above

\( (0,0) \)
\( 0 \leq 60 \) False
\[3x + 4y = 60\]
\[2x + y = 20\]

Multiply \(y\) by \(-4\):
\[8x - 4y = -80\]

Add the two equations:
\[-5x = -20\]
\[x = 4\]

Substitute \(x = 4\) into one of the original equations:
\[2(4) + y = 20\]
\[8 + y = 20\]
\[y = 12\]

The system of equations gives the solution \((4, 12)\).

For the company's profit:
\[C = 28x + 33y\]

Evaluate at each point:
\[(0, 20)\] \[C = 0 + 33(20) = 660\]
\[(0, 0)\] \[C = 28(0) + 0 = 560\]
\[(4, 12)\] \[C = 28(4) + 33(12) = 112 + 396 = 508\]

The company should run Machine I for 4 hours and Machine II for 12 hours to achieve a minimum profit of $508.
Friday
7.6 Finish those assigned worksheet
2 4 6

Monday 1 3 5 7

Wed LP2 Do!!
Test 4 Linear Programming
Friday Dec 9

Last day of class
Monday Dec 12

Final Exam
Friday Dec 16
12:30 - 2:30
PH 112