

Math 1160 – Section 3.1 Answer Key

4. Yes – The point is in the feasible set. (*Do not graph the inequalities. Plug the coordinates of the point into all inequalities and see if the point makes all inequalities true.)

6a.

	Mine 1	Mine 2	Ordered
Anthracite	4 tons	10 tons	80 tons
Ordinary	4 tons	5 tons	60 tons
Bituminous	7 tons	5 tons	75 tons
Daily Cost	\$150	\$200	

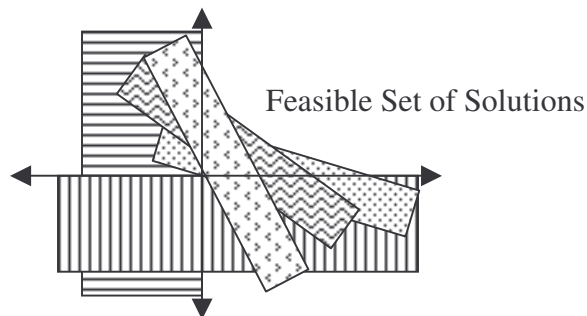
6b. Anthracite: $4x + 10y \geq 80$ OR $y \geq (-2/5)x + 8$
 Ordinary: $4x + 5y \geq 60$ $y \geq (-4/5)x + 12$
 Bituminous: $7x + 5y \geq 75$ $y \geq (-7/5)x + 15$

(*When filling an order, the order amount is a minimum.)

6c. $x \geq 0, y \geq 0$

6d. $150x + 200y =$ operating costs

6e.



10a.

	Denim	Hooded Fleece	Available
Cutting	2 hours	1 hour	42 hours
Sewing	2 hours	4 hours	90 hours
Finishing	1 hour	1 hour	27 hours
Profit	\$9	\$5	

10b. Cutting: $2x + y \leq 42$ OR $y \leq -2x + 42$
Sewing: $2x + 4y \leq 90$ $y \leq (-1/2)x + 22.5$
Finishing: $x + y \leq 27$ $y \leq -x + 27$

(*Labor hours denote a maximum available for use.)

10c. $x \geq 0, y \geq 0$

10d. $9x + 5y = \text{profit}$

10e.

