Inequality Worksheets

1. a) The length of a rectangular fenced enclosure is 12 feet more than the width. If Farmer Dan has 100 feet of fencing, write an inequality to find the dimensions of the rectangle with the largest perimeter that can be created using 100 feet of fencing.

b) What are the dimensions of the rectangle with the largest perimeter? What is the area enclosed by this rectangle?

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1. a) The length of a rectangular fenced enclosure is 12 feet more than the width. If Farmer Dan has 100 feet of fencing, write an inequality to find the dimensions of the rectangle with the largest perimeter that can be created using 100 feet of fencing.

Let w represent the width of the fenced enclosure.

$w + 12$: *length of the fenced enclosure*

$$w + w + w + 12 + w + 12 \leq 100$$
$$4w + 24 \leq 100$$

b) What are the dimensions of the rectangle with the largest perimeter? What is the area enclosed by this rectangle?

$$4w + 24 \leq 100$$
$$4w + 24 - 24 \leq 100 - 24$$
$$4w + 0 \leq 76$$
$$\left(\frac{1}{4}\right)(4w) \leq \left(\frac{1}{4}\right)(76)$$
$$w \leq 19$$

*Maximum width is **19** feet.*

*Maximum length is **31** feet.*

Maximum area: $A = lw$

$$A = (19)(31)$$
$$A = 589$$

*The area is **589** ft^2.*

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