*(b)* Suppose that there are 9 men and 10 women at Vanna's party. Would Vanna think it was a better party or a worse party if 5 more men came to her party?_____.

(c) If Vanna has 16 women at her party and more men than women, and if she thinks the party is exactly as good as having 10 men and 10 women, how many men does she have at the party?_____ If Vanna has 16 women at her party and more women than men, and if she thinks the party is exactly as good as having 10 men and 10 women, how many men does she have at her party?_____.

(d) Vanna's indifference curves are shaped like what letter of the alphabet?_____.

y

x
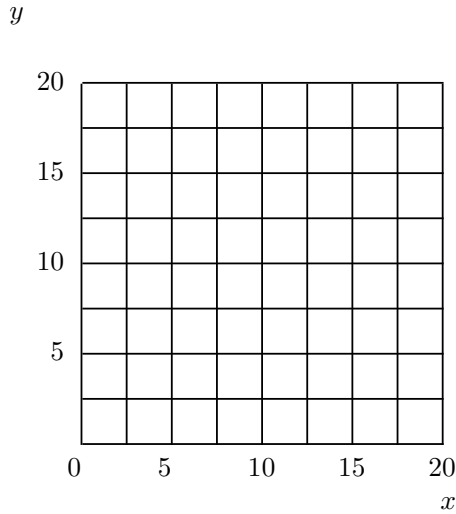
4.9 (0) Suppose that the utility functions $u(x, y)$ and $v(x, y)$ are related by $v(x, y) = f(u(x, y))$. In each case below, write "Yes" if the function f is a positive monotonic transformation and "No" if it is not. (Hint for calculus users: A differentiable function $f(u)$ is an increasing function of u if its derivative is positive.)

(a) $f(u) = 3.141592u.$_____.

(b) $f(u) = 5,000 - 23u.$_____.

*(c)* $f(u) = u - 100,000.$_____.

(d) $f(u) = \log_{10} u.$———————————————————————.

(e) $f(u) = -e^{-u}.$———————————————————————.

(f) $f(u) = 1/u.$———————————————————————.

(g) $f(u) = -1/u.$———————————————————————.

4.10 (0) Martha Modest has preferences represented by the utility function $U(a, b) = ab/100$, where a is the number of ounces of animal crackers that she consumes and b is the number of ounces of beans that she consumes.

(a) On the graph below, sketch the locus of points that Martha finds indifferent to having 8 ounces of animal crackers and 2 ounces of beans. Also sketch the locus of points that she finds indifferent to having 6 ounces of animal crackers and 4 ounces of beans.

Beans
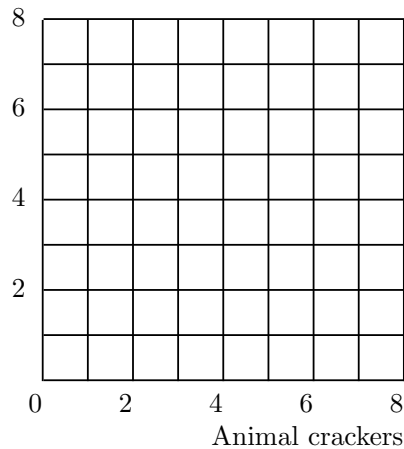
Animal crackers

(b) Bertha Brassy has preferences represented by the utility function $V(a, b) = 1,000a^2b^2$, where a is the number of ounces of animal crackers that she consumes and b is the number of ounces of beans that she consumes. On the graph below, sketch the locus of points that Bertha finds indifferent to having 8 ounces of animal crackers and 2 ounces of beans. Also sketch the locus of points that she finds indifferent to having 6 ounces of animal crackers and 4 ounces of beans.

(a) On the graph below, draw a "budget line" showing the various combinations of scores on the two exams that she can achieve with a total of 400 minutes of studying. On the same graph, draw two or three "indifference curves" for Nancy. On your graph, find the point on Nancy's budget line that gives her the best overall score in the course.

(b) Given that she spends a total of 400 minutes studying, Nancy will maximize her overall score by achieving a score of _____ on the first examination and _____ on the second examination.

(c) Her overall score for the course will then be_____.

Score on Test 2

Score on Test 1
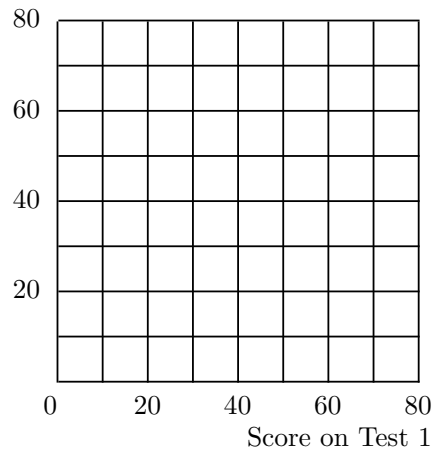
5.6 (0) Elmer's utility function is $U(x, y) = \min\{x, y^2\}$.

(a) If Elmer consumes 4 units of x and 3 units of y, his utility is_____.

(b) If Elmer consumes 4 units of x and 2 units of y, his utility is_____.

(c) If Elmer consumes 5 units of x and 2 units of y, his utility is_____.

(d) On the graph below, use blue ink to draw the indifference curve for Elmer that contains the bundles that he likes exactly as well as the bundle $(4, 2)$.

(e) On the same graph, use blue ink to draw the indifference curve for Elmer that contains bundles that he likes exactly as well as the bundle $(1, 1)$ and the indifference curve that passes through the point $(16, 5)$.

(f) On your graph, use black ink to show the locus of points at which Elmer's indifference curves have kinks. What is the equation for this curve?_____.

(g) On the same graph, use black ink to draw Elmer's budget line when the price of x is 1, the price of y is 2, and his income is 8. What bundle does Elmer choose in this situation?_____.
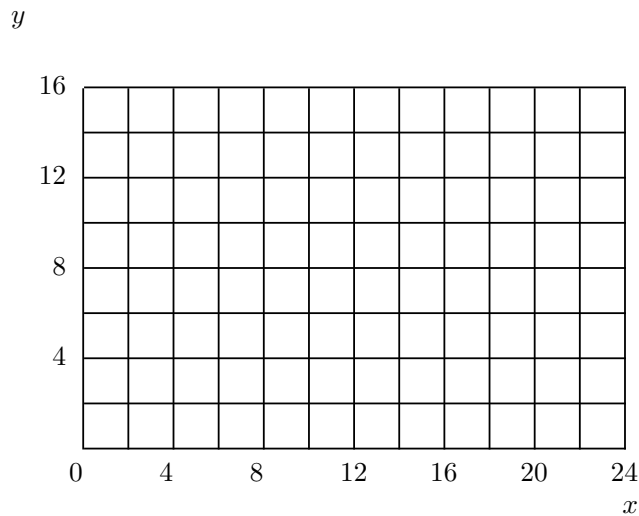
(h) Suppose that the price of x is 10 and the price of y is 15 and Elmer buys 100 units of x. What is Elmer's income? _____ (Hint: At first you might think there is too little information to answer this question. But think about how much y he must be demanding if he chooses 100 units of x.)

5.7 (0) Linus has the utility function $U(x, y) = x + 3y$.

(a) On the graph below, use blue ink to draw the indifference curve passing through the point $(x, y) = (3, 3)$. Use black ink to sketch the indifference curve connecting bundles that give Linus a utility of 6.