3.1

1/1 point (graded)
What statement(s) about Marginal Rate of Substitution (MRS) is/are correct? Select all that apply.

☐ MRS measures willingness to trade one bundle for another.
✔

☐ MRS is measured along an indifference curve and it is the same everywhere along the same indifference curve.

☐ MRS of x for y is the marginal utility of x divided by the marginal utility of y (holding total utility constant), which is equal to −dx/dy.

☐ MRS of x for y answers the question, "How much y do you need to compensate for a unit loss in x?"
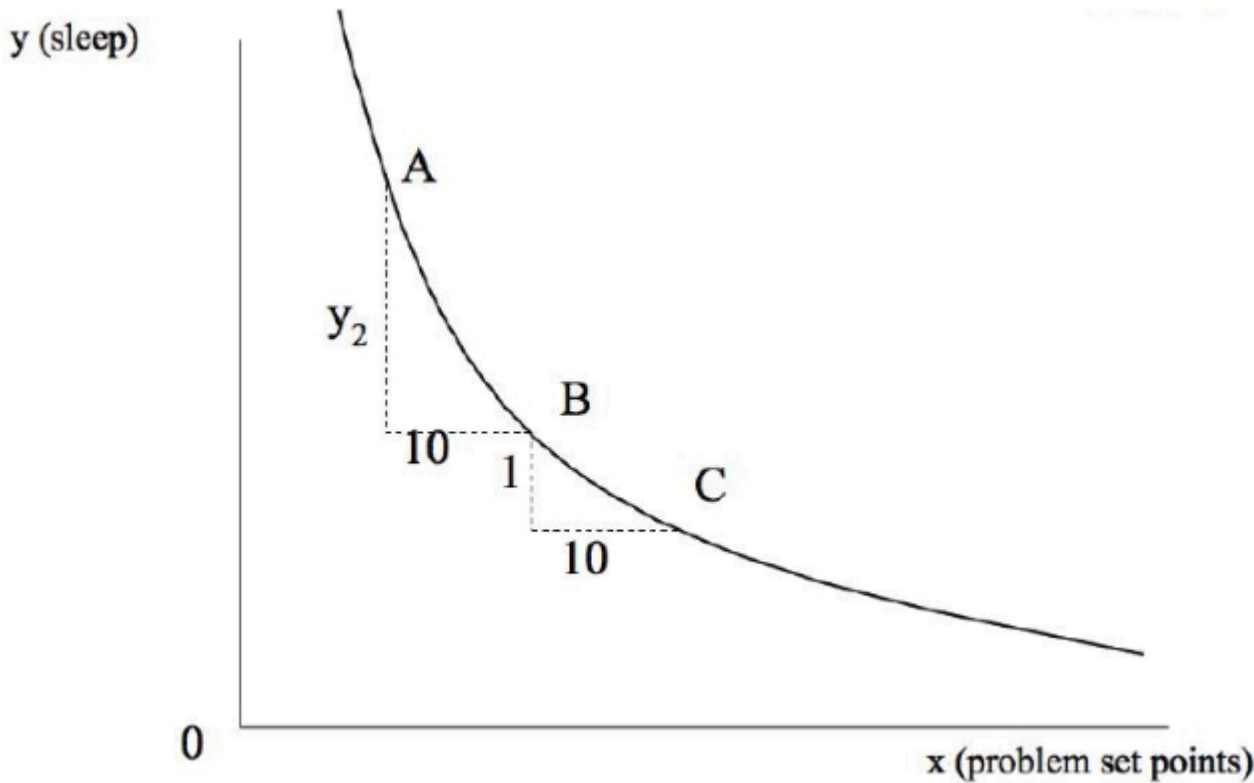✔

Explanation
The MRS is measured along an indifference curve and it may vary along the same indifference curve. Therefore, the MRS must be defined relative to some bundle (starting point). The MRS of x for y is the marginal utility of x divided by the marginal utility of y (holding total utility constant), which is equal to −dy/dx.

Submit   You have used 1 of 2 attempts

ⓘ   Answers are displayed within the problem

3.2

1/1 point (graded)
Moving from bundle B to bundle C, what is the MRS of y (hours of sleep) for x (problem set points)?

○ 0.1

○ 1

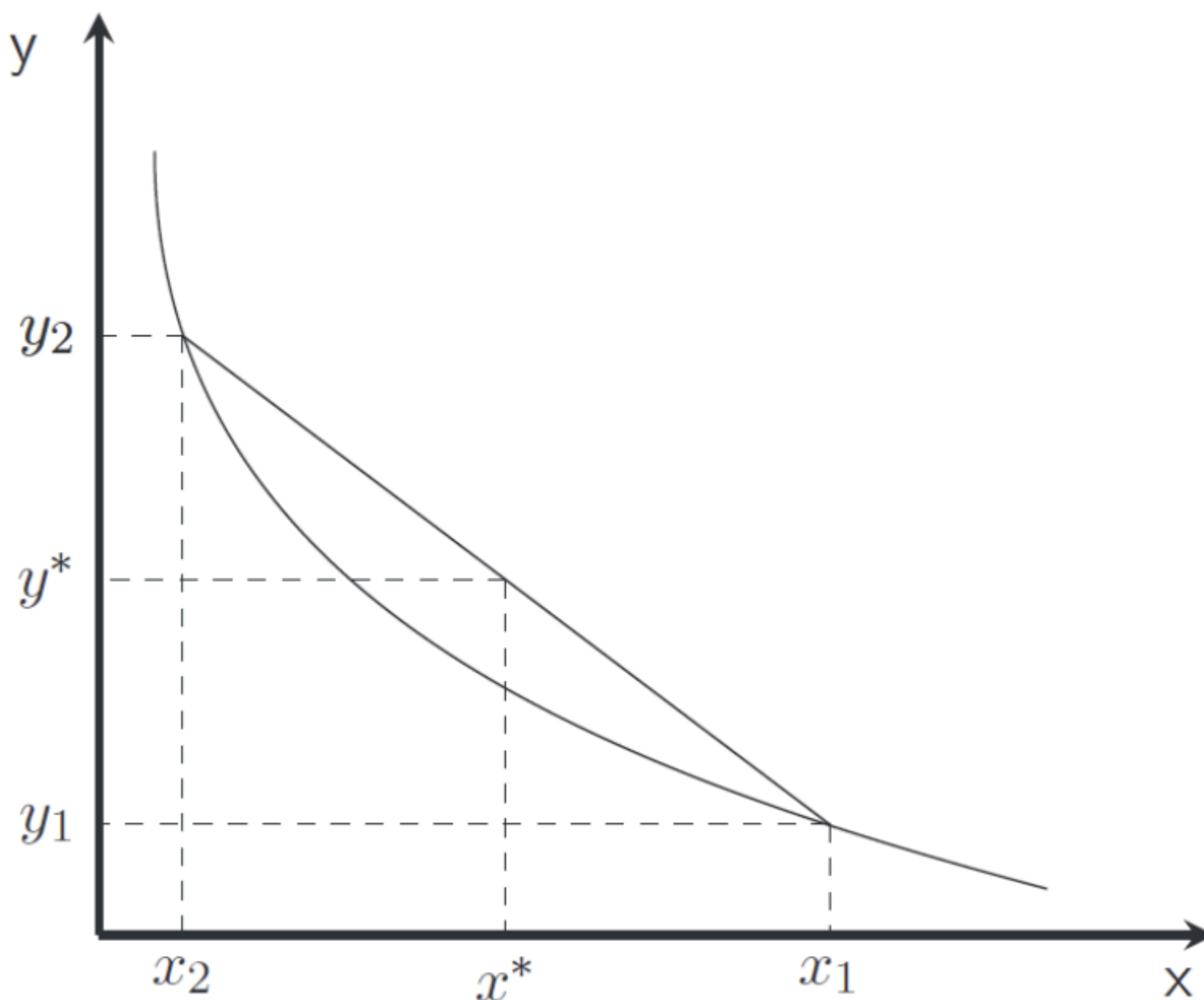Calculator

- (●) 10

- (○) y_2

✔

Explanation
MRS of y for x answers the question, "How much x do you need to compensate for a unit loss in y?" Therefore, from bundle B to bundle C, we need 10 more x (problem set points) to compensate for 1 unit loss in y (hours of sleep). The answer is 10.

Submit   You have used 1 of 2 attempts

ℹ Answers are displayed within the problem

3.3

3/3 points (graded)

Fill in the blanks. A [convex ▾] ✔ Answer: convex indifference curve exhibits diminishing MRS, implying that consumers prefer diversity in consumption. A [concave ▾] ✔ Answer: concave indifference curve implies that consumers should not diversify consumption. The above graph is an example of a [convex ▾] ✔

Answer: convex indifference curve.

Explanation
A convex indifference curve exhibits diminishing MRS which implies that consumers prefer diversity in consumption. A formal definition of diminishing MRS can be given through the mathematical notion of convexity. On the other hand, a concave indifference curve does not exhibit diminishing MRS and it implies that consumers should not diversify consumption. The above graph is an example of a convex indifference curve because

$$U\left(\alpha x_1 + (1 - \alpha) x_2, \alpha y_1 + (1 - \alpha) y_2\right) \geq \alpha U\left(x_1, y_1\right) + (1 - \alpha) U\left(x_2, y_2\right)$$

▦ Calculator