

ANSWER KEY

Tribal Taxes Math Worksheet

Scenario

John is a high school senior and an enrolled member of a federally recognized Native American Tribe who lives with his family on the Tribe's reservation lands near the Oregon Coast. Last summer, to save money for college, he worked two part-time jobs. The first was clearing trails on Tribal forest land for his Tribe's natural resources department, for which he was paid a total of \$4,000. The second job was lifeguarding at the public pool in the nearby beach town, for which he was paid \$7,500. It's now tax time, and John needs to figure out how much federal and Oregon income taxes he must pay.

Use this information to answer the questions that follow. Be sure to show your work.

Note: Figuring income taxes owed is a bit more complicated in real life than is suggested by the following steps. For example, each taxpayer must consider their dependent status, exemptions, and other adjustments to their income that apply to their unique tax situation. The steps below are intended to teach you the concept of tax rates and give you experience writing and graphing a piecewise function.

Part 1

Step 1

Using the instructions and information provided by your teacher, fill in the following table with federal income tax ranges and rates for the current tax reporting year.

Note: These income ranges and rates come from a slide in the PowerPoint file accompanying this lesson. If you would like to use information for the current tax year, you will need to replace the numbers in the slide and in this table.

Federal Taxes (current year): 2020	
Income (Single Filers)	Rate
\$0–\$9,875	10%
\$9,876–\$40,125	12%
\$40,126–\$85,525	22%
\$85,526–\$163,300	24%
\$163,301–\$207,350	32%
\$207,351–\$518,400	35%
\$518,401 or more	37%

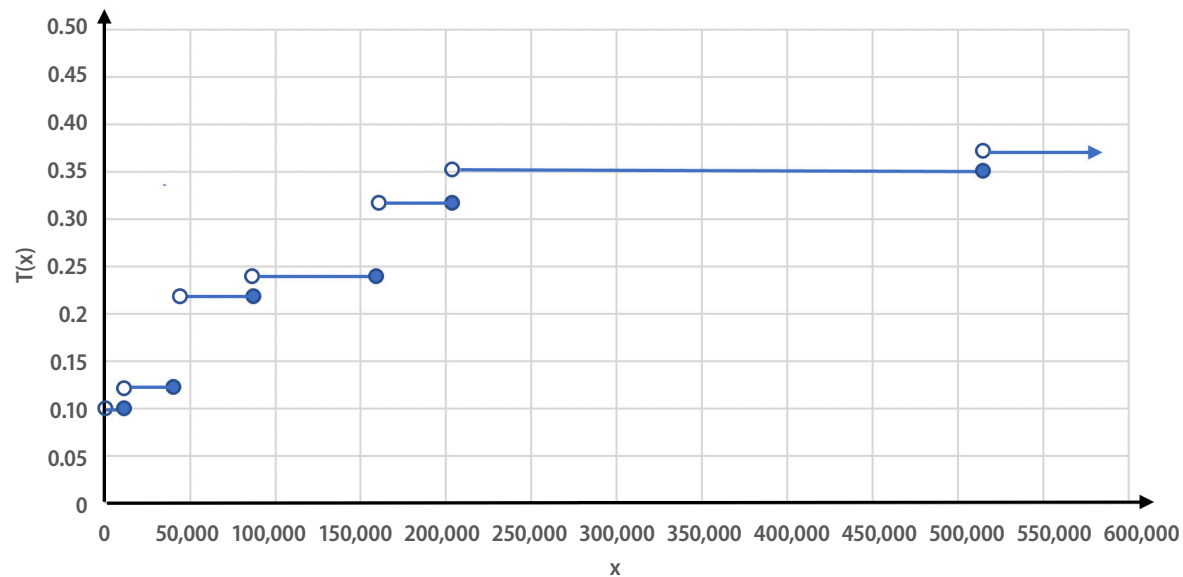
ANSWER KEY

Tribal Taxes Math Worksheet (Continued)

Step 2

Use the information in the table to create a chart representing federal income tax rates by income ranges.

Note: Data plot points and line lengths are approximations.



Step 3

Use the table and/or chart above to determine the federal income tax rate John would pay on the income he earned last year.

Job 1 income: \$4,000

Job 2 income: \$7,500

Total reportable income = \$11,500

Based on the table and chart above, for \$11,500 in income John would pay a federal income tax rate of 12%.

Note: As described for students above, this and several of the following calculations are greatly simplified, excluding issues that usually factor into calculating tax due, such as whether John can be claimed as a dependent, if he qualifies for one or more exemptions, and any additions or subtractions that may apply to his unique tax situation. The goal is to support students' understanding and application of income tax income ranges and rates, calculating and graphing piecewise functions, and the accommodations state policies make for the sovereignty of federally recognized Native American Tribes.

ANSWER KEY

Tribal Taxes Math Worksheet (Continued)

Step 4

Use the table and/or chart above to write a piecewise function to calculate actual federal income taxes owed for a given income.

x = Income in dollars

$T(x)$ = Federal income tax owed (by a single taxpayer)

$$T(x) = \begin{cases} .10x & \text{if } 0 < x \leq 9,875 \\ 987.5 + .12(x - 9,875) & \text{if } 9,875 < x \leq 40,125 \\ 4,617.5 + .22(x - 40,125) & \text{if } 40,125 < x \leq 85,525 \\ 14,605.5 + .24(x - 85,525) & \text{if } 85,525 < x \leq 163,300 \\ 33,271.5 + .32(x - 163,300) & \text{if } 163,300 < x \leq 207,350 \\ 47,367.5 + .35(x - 207,350) & \text{if } 207,350 < x \leq 518,400 \\ 156,235 + .37(x - 518,400) & \text{if } x > 518,400 \end{cases}$$

Step 5

Use your piecewise function to calculate how much John owes in federal income taxes.

Job 1 income: \$4,000

$$T(x) = 987.5 + .12(x - 9,875)$$

Job 2 income: \$7,500

$$T(x) = 987.5 + .12(11,500 - 9,875)$$

Total reportable income = \$11,500

$$T(x) = 987.5 + .12(1,625)$$

x = Income in dollars

$$T(x) = 987.5 + 195$$

$T(x)$ = Federal income tax owed (by a single taxpayer)

$$T(x) = 1,182.5$$

John owes \$1,182.50 in federal income tax

$$T(x) = \begin{cases} .10x & \text{if } 0 < x \leq 9,875 \\ 987.5 + .12(x - 9,875) & \text{if } 9,875 < x \leq 40,125 \\ 4,617.5 + .22(x - 40,125) & \text{if } 40,125 < x \leq 85,525 \\ 14,605.5 + .24(x - 85,525) & \text{if } 85,525 < x \leq 163,300 \\ 33,271.5 + .32(x - 163,300) & \text{if } 163,300 < x \leq 207,350 \\ 47,367.5 + .35(x - 207,350) & \text{if } 207,350 < x \leq 518,400 \\ 156,235 + .37(x - 518,400) & \text{if } x > 518,400 \end{cases}$$

ANSWER KEY

Tribal Taxes Math Worksheet *(Continued)*

Part 2

Step 1

Using the instructions and information provided by your teacher, fill in the following table with Oregon income tax ranges and rates for the current tax reporting year.

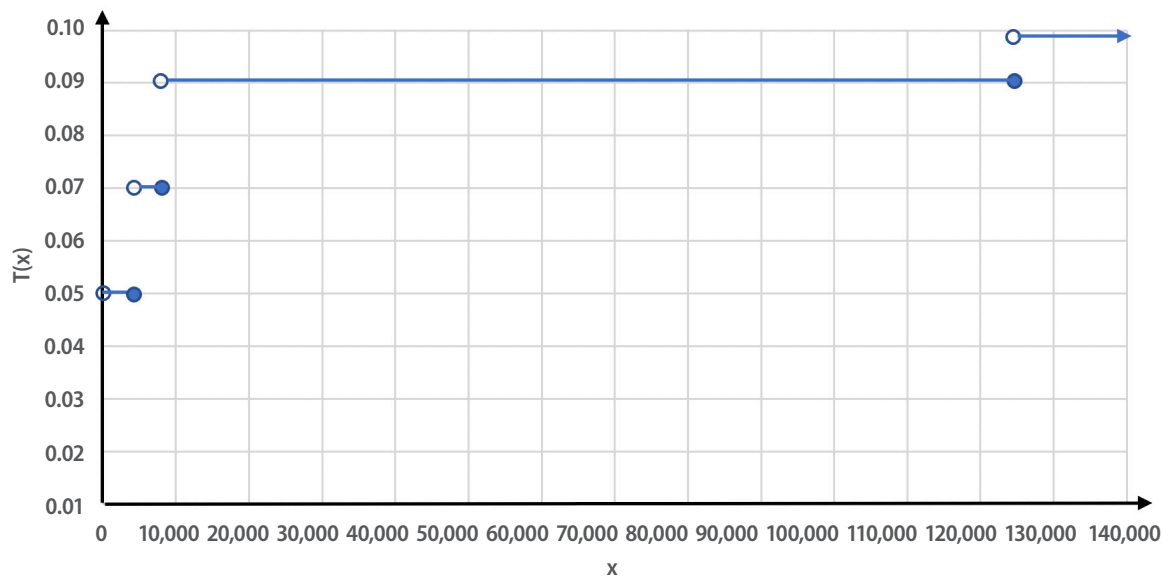
Note: These income ranges and rates come from a slide in the PowerPoint file accompanying this lesson. If you would like to use information for the current tax year, you will need to replace the numbers in the slide and in this table.

Oregon Taxes (current year): 2019	
Income (Single Filers)	Rate
\$0-\$3,550	5%
\$3,351-\$8,900	7%
\$8,901-\$125,000	9%
Over \$125,000	9.9%

Step 2

Use the information in the table to create a chart representing Oregon income tax rates by income ranges.

Note: Data plot points and line lengths are approximations.



ANSWER KEY

Tribal Taxes Math Worksheet *(Continued)*

Step 3

Use the table and/or chart above to determine the Oregon income tax rate John would normally have to pay on the income he earned from both jobs last year.

Job 1 income: \$4,000

Job 2 income: \$7,500

Total reportable income = \$11,500

Based on the table and chart above, for \$11,500 in income John would pay an Oregon income tax rate of 9%.

Step 4

John may not have to pay Oregon income taxes on money he earned from one of his jobs. Which job and why?

When calculating his Oregon income tax owed, John can exclude the \$4,000 he earned clearing trails from his reportable income because he meets the following qualifications specified in Schedule OR-EIS:

- He is an enrolled member of a federally recognized Tribe.*
- His income from clearing trails was earned on Tribal-owned forest land (Indian country).*
- He lives on his Tribe's reservation (Indian country).*

Therefore, only the \$7,500 he earned lifeguarding is subject to Oregon income tax.

If John can exempt the income from the job, does that change the Oregon income tax rate he will pay? Why or why not?

Yes, the Oregon income tax rate John would pay is reduced from 9% to 7% because the decrease in reportable income from \$11,500 to \$7,500 moves him out of one income range (or bracket) and into a different (lower) income bracket.

ANSWER KEY

Tribal Taxes Math Worksheet (Continued)

Step 5

Use the table and/or chart above to write a piecewise function to calculate actual Oregon income taxes owed for a given income.

$x = \text{Income in dollars}$

$T(x) = \text{Federal income tax owed (by a single taxpayer)}$

$$T(x) = \begin{cases} .05x & \text{if } 0 < x \leq 3,550 \\ 177.5 + .07(x - 3,550) & \text{if } 3,550 < x \leq 8,900 \\ 552 + .09(x - 8,900) & \text{if } 8,900 < x \leq 125,000 \\ 11,001 + .099(x - 125,000) & \text{if } x > 125,000 \end{cases}$$

Step 6

Use your piecewise function to calculate how much John owes in Oregon income taxes. Assume he qualifies to exclude the money he earned from one of his jobs as discussed in Step 4 above.

Job 1 income: \$4,000

-\$4,000 (excluded)

Job 2 income: \$7,500

Total reportable income = \$7,500

$x = \text{Income in dollars}$

$T(x) = \text{Federal income tax owed (by a single taxpayer)}$

$$T(x) = 177.5 + .07(x - 3,550)$$

$$T(x) = 177.5 + .07(7,500 - 3,550)$$

$$T(x) = 177.5 + .07(3,950)$$

$$T(x) = 177.5 + 276.5$$

$$T(x) = 454$$

John owes \$454 in federal income tax

$$T(x) = \begin{cases} .05x & \text{if } 0 < x \leq 3,550 \\ 177.5 + .07(x - 3,550) & \text{if } 3,550 < x \leq 8,900 \\ 552 + .09(x - 8,900) & \text{if } 8,900 < x \leq 125,000 \\ 11,001 + .099(x - 125,000) & \text{if } x > 125,000 \end{cases}$$