

NECAP Practice Test

Grade 8

Mathematics

Calculator-Active Short-Answer Item (2 points)

- 7 Sean and Barry are participating in a 30-mile bike race. Sean averages 20 miles per hour and Barry averages 15 miles per hour. How many miles will Barry be from the finish line when Sean finishes the race? Show your work or explain how you know.

Scoring Guide

Score	Description
2	Correct answer, 7.5 (miles), with explanation or work.
1	Correct answer. OR Explanation or work shows some correct strategy for solving the problem.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Sample Response:

Sean will take $30 \div 20 = 1.5$ hours to complete the race. After 1.5 hours, Barry will have traveled $1.5 \times 15 = 22.5$ miles. So Barry will be $30 - 22.5 = 7.5$ miles from the finish.

OR

Sean will take $30 \div 20 = 1.5$ hours to complete the race. Barry will take $30 \div 15 = 2$ hours to complete the race. $2 \text{ hours} - 1.5 \text{ hours} = 0.5 \text{ hours}$. $15 \text{ mph} \times 0.5 = 7.5 \text{ miles}$ (or $15 \div 2 = 7.5 \text{ miles}$).

* All students were provided the same amount of space in which to write their answers. For the purposes of this document, extraneous white space was removed from each student work sample to save space.

NECAP Practice Test Grade 8 Mathematics

Sample 2-Point Response

30 mi race
 $r \cdot t = d$

Sean	20m	+	t
Barry	15m	+	t-5

$D = rt$ $\frac{20}{15} = \frac{2}{1.5}$

$$\begin{array}{r} 20t = 15t - 5 \\ -5 \qquad \qquad -5 \\ \hline 15t = 15t \end{array}$$

$\frac{15.0}{7.5} = 2$
 $\frac{1}{2} \text{ hrs.} = 30$

$\frac{30.0}{22.5} = 1.33$
 $2 \text{ hrs.} = 30$

at $\frac{1}{2}$ hrs, Barry = 7.5m from finish line

NECAP Practice Test
Grade 8
Mathematics

Sample 1-Point Response A

30 miles
S=20
B=15

S=30m
3=

7.5
 $2 \overline{)15}$
14
10

15.0
+7.5

22.5m

29.0
~~30.0~~
-22.5

17.5

17.5m

Sample 1-Point Response B

Sean will finish in $1\frac{1}{2}$ hours
Barry will finish in 2 hours
Barry will finish 7.5 miles
after Sean.