NWEA Assessment Item Illustrating 7.EE.B.4.b

Domain: Expressions and Equations

7.EE.B: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Calculator Availability: Yes

Use the information to answer the question.

Yuri is participating in a fund-raiser at school. She will receive donations from 2 people. A cousin will donate $\$0.40$ for every $\frac{1}{8}$ mile that Yuri walks. A friend will give Yuri a one-time donation of $\$30$.

What is the minimum number of miles Yuri needs to walk to raise at least $\$50$? Enter the answer in the box.

[_____] miles

Alignment: 7.EE.B.4b: Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.

Understanding and representing real-world relationships between quantities is a useful everyday skill and is essential as students prepare to model and solve more complex problems. This item specifically focuses on application of mathematics in a real-world context. The mixed use of rational numbers was intentional and creates a challenging problem that encourages an algebraic approach to the problem. Students can construct a simple inequality by using the $0.40 for every 1/8 mile to write an inequality such as 3.20x + 30 ≥ 50.

Coherence: Throughout grades K–5, students used expressions to represent word problems in the Operations and Algebraic Thinking domain. In grade 6, the concept of a variable was introduced and students solved one-step equations and inequalities.[6.EE.B] In grade 7, students are extending this work beyond one-step equations and inequalities.[7.EE.B.4] Students will further apply this knowledge to create and solve more complex linear equations in grade 8[8.EE.B.7] and extend the use of these strategies to solve non-linear inequalities in high school.[HSA-REI.A/B]

Rigor: This item attends to procedural skill and application. Students have developed grade-level procedures for operating with rational numbers in different forms and for solving inequalities of the form p(x + q) ≥ r. This item requires an application of mathematics in a real-world scenario where students must interpret and reason about the context in order to determine which concepts are needed to solve. The calculator is provided as a tool, which, if used, lessens the procedural complexity of the item.

Answer Key:

Use the information to answer the question.

Yuri is participating in a fund-raiser at school. She will receive donations from 2 people. A cousin will donate $\$0.40$ for every $\frac{1}{8}$ mile that Yuri walks. A friend will give Yuri a one-time donation of $\$30$.

What is the minimum number of miles Yuri needs to walk to raise at least $\$50$? Enter the answer in the box.

[6.25] miles

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