

Scoring Rubric

High School Mathematics Practice Test Item 40	
Strand: Solves Problems and Reasons Logically	
SR02	Learning Target: (Construct Solutions) Select and organize relevant information; use appropriate concepts and procedures from number sense, measurement, geometric sense, probability and statistics, and algebraic sense; use a variety of strategies and approaches; determine whether a solution is viable, mathematically correct, and answers the question(s) asked (2.2.1, 2.2.2, 2.2.3, 2.2.4)
<p>A 2-point response: The student shows understanding of organizing relevant information and applying procedures to construct a solution by providing the following:</p> <p><u>Relevant Information:</u> Games played to date = 15 60% of total games is goal for winning percentage Games won = 10 Games left to play = 25</p> <p><u>Procedures:</u> $25 + 15 = 40$ to find total games in the season $40 ? 60\% = 24$ to determine number of needed wins for percentage $24 - 10 = 14$ to determine number of remaining games that must be won</p> <p><u>Solution:</u> 14 more wins are needed Note: The student may omit showing one procedure, but must include $40 ? 60\% = 24$. Note: The student may show all procedures with one computation error, and their final answer is consistent with the error made.</p> <p>A 1-point response: The student does <u>one</u> of the following:</p> <ul style="list-style-type: none">• omits showing <u>two</u> procedures but <u>does include</u> $40 ? 60\% = 24$• omits showing <u>one</u> piece of relevant information but <u>must include</u> 60% of total games <u>and</u> games to play = 25• indicates that 14 more wins are needed, all relevant information is shown and used appropriately, and all procedures are implied but not shown. <p>A 0-point response: The student shows very little or no understanding of organizing relevant information and applying procedures to construct a solution.</p>	

40. A team has won 10 of the 15 games it has played. The team has 25 games left to play. The players figure they will make the playoffs if their winning percentage for the season is 60%.

How many of the **remaining** games must the team win to have a record of 60% wins for the season?

Show how you arrived at your answer.

$$\begin{aligned} \text{Total games} &= 15 + 25 = 40 \\ \text{60\% of total games} &= 24 \text{ games } (40 \cdot .6) \\ \text{games left to win} &= 14 \text{ } (24 - 10) \end{aligned}$$

To have a winning percentage of 60 percent the basketball team must win 14 of their remaining 25 games

How many more wins are needed? 14

Score:

2

Annotation:

The student shows understanding of organizing relevant information and applying procedures to construct a solution by providing 1) all relevant information (15 games played to date, 25 games left to play, 60% is the goal, and 10 games already won), 2) all procedures ($15 + 25 = 40$, $40 \times .6 = 24$, and $24 - 10 = 14$), and 3) a solution of 14. This response earns two points.

40. A team has won 10 of the 15 games it has played. The team has 25 games left to play. The players figure they will make the playoffs if their winning percentage for the season is 60%.

How many of the **remaining** games must the team win to have a record of 60% wins for the season?

Show how you arrived at your answer.

Handwritten work includes:

- A vertical addition: $\begin{array}{r} 15 \\ 25 \\ \hline 30 \end{array}$
- The equation: $60\% \text{ of } 30 = 18$
- A bar model with 30 vertical bars, with the first 10 bars crossed out.
- A subtraction: $\begin{array}{r} 18 \\ -10 \\ \hline 8 \end{array}$
- Text: "The team will have to win at least 18 games to make it to playoffs. to get my answer I first added up all the games to get a total of games that year then found 60% of that number to find the wins for playoffs. then I took How many they already won and How many more wins are needed? Minused that from 18 to get 8."

Score:

2

Annotation:

The student shows understanding of organizing relevant information and applying procedures to construct a solution by providing 1) all relevant information (15 games played to date, 25 games left to play, 60% is the goal, and 10 games already won), 2) all procedures with one computation error ($15 + 25 = 30$ (error), 60% of $30 = 18$, and $18 - 10 = 8$), and 3) a solution of 8, which is a direct result of the computation error. This response earns two points.

40. A team has won 10 of the 15 games it has played. The team has 25 games left to play. The players figure they will make the playoffs if their winning percentage for the season is 60%.

How many of the **remaining** games must the team win to have a record of 60% wins for the season?

Show how you arrived at your answer.

$$24 \div 40 = (60\%)$$

How many more wins are needed? 14

Score:
1

Annotation:
The student shows partial understanding of organizing relevant information and applying procedures to construct a solution by showing $24 \div 40 = .60$ (60%) and a solution of 14. Source of solution is unclear. This response earns one point.

40. A team has won 10 of the 15 games it has played. The team has 25 games left to play. The players figure they will make the playoffs if their winning percentage for the season is 60%.

How many of the **remaining** games must the team win to have a record of 60% wins for the season?

Show how you arrived at your answer.

<p>40 games $\frac{1}{2} = 20 = 50$ percent 4-10 percent</p>
<p>How many more wins are needed? <u>about 24</u></p>

Score:
0

Annotation:
The student shows little or no understanding of organizing relevant information and applying procedures to construct a solution by 1) omitting two pieces of relevant information (10 games already won and 60% is the goal), 2) omitting all procedures, and 3) providing a solution of "about 24." This response earns zero points.