

Question 27

| Code | Descriptor |
|-----------|---|
| B | <ul style="list-style-type: none"> • Blank: nothing written or drawn in response to the question |
| I | <ul style="list-style-type: none"> • Illegible: cannot be read; completely crossed out / erased; not written in English • Irrelevant content: does not attempt assigned question (e.g., comment on the task, drawings, “?”, “!”, “I don’t know”) • Off topic: no relationship of written work to the question |
| 10 | <p>Problem-solving process to solve problems that use two or three symbols or letters as variables to represent different unknown quantities shows limited effectiveness due to</p> <ul style="list-style-type: none"> • minimal evidence of a solution process • limited identification of important elements of the problem • too much emphasis on unimportant elements of the problem • no conclusions presented • conclusion presented without supporting evidence |
| 20 | <p>Problem-solving process to solve problems that use two or three symbols or letters as variables to represent different unknown quantities shows some effectiveness due to</p> <ul style="list-style-type: none"> • an incomplete solution process • identification of some of the important elements of the problem • some understanding of the relationships between important elements of the problem • simple conclusions with little supporting evidence |
| 30 | <p>Problem-solving process to solve problems that use two or three symbols or letters as variables to represent different unknown quantities shows considerable effectiveness due to</p> <ul style="list-style-type: none"> • a solution process that is nearly complete • identification of most of the important elements of the problem • a considerable understanding of the relationships between important elements of the problem • appropriate conclusions with supporting evidence |
| 40 | <p>Problem-solving process to solve problems that use two or three symbols or letters as variables to represent different unknown quantities shows a high degree of effectiveness due to</p> <ul style="list-style-type: none"> • a complete solution process • identification of all important elements of the problem • a thorough understanding of the relationships between all of the important elements of the problem • appropriate conclusions with thorough and insightful supporting evidence |

Assessments of Reading, Writing and Mathematics, Junior Division
Anchor Set and Rationales for Mathematics Open-Response
Question 27

10

When Jennifer and Tom visit another country, they find two types of coins are used there, one with a Q on it and one with an E on it. Jennifer has 13 Q coins and Tom has 5 Q coins and 7 E coins. If Jennifer's coins have a total value of \$0.65 and Tom's coins have a total value of \$3.75, what is the value of each type of coin?

Show your work.

$$\begin{array}{r} 20 \\ 13 \overline{) 260} \\ \underline{260} \\ 0 \end{array}$$

The value of the Q coin is 20¢.

The value of the E coin is 2¢.

Rationale: Student demonstrates minimal evidence of a solution process and limited identification of important elements of the problem; makes an attempt at solving for Q but arrives at an unreasonable answer.

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When Jennifer and Tom visit another country, they find two types of coins are used there, one with a Q on it and one with an E on it. Jennifer has 13 Q coins and Tom has 5 Q coins and 7 E coins. If Jennifer's coins have a total value of \$0.65 and Tom's coins have a total value of \$3.75, what is the value of each type of coin? 0.05

Show your work.

$$\text{Jennifer} - \$0.65 \div 13 = 0.05$$

$$\text{Tom} - \$3.75 \div 5 = 0.75$$

$$5+7=12 \quad \$3.75 \div 7 = 0.5357142857$$

$$\$3.75 \div 12 = 0.3125$$

$$Q - 0.05$$

$$E - 0.5357142857$$

The value of the Q coin is 0.05

The value of the E coin is 0.5357142857

Rationale: Student identifies some of the important elements of the problem; student accurately identifies the value for "Q" (\$0.05) but does not use the information to find the value of "E".

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When Jennifer and Tom visit another country, they find two types of coins are used there, one with a Q on it and one with an E on it. Jennifer has 13 Q coins and Tom has 5 Q coins and 7 E coins. If Jennifer's coins have a total value of \$0.65 and Tom's coins have a total value of \$3.75, what is the value of each type of coin?

Show your work.

Jennifer

Tom

The value of the Q coin is 5¢.

The value of the E coin is _____.

Rationale: Student demonstrates some understanding of the relationships between important elements of the problem; provides a correct solution for “Q” but does not determine the value of coins “E”.

Assessments of Reading, Writing and Mathematics, Junior Division
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When Jennifer and Tom visit another country, they find two types of coins are used there, one with a Q on it and one with an E on it. Jennifer has 13 Q coins and Tom has 5 Q coins and 7 E coins. If Jennifer's coins have a total value of \$0.65 and Tom's coins have a total value of \$3.75, what is the value of each type of coin?

Show your work.

$$\begin{array}{r} 13 \\ 4 \\ \hline 67 \end{array}$$

$$\begin{array}{r} 0.04 \\ 13 \overline{)0.65} \end{array}$$

$$\begin{array}{r} 5 \quad \$3.75 \\ 4 \\ \hline 20 \\ - \quad 20 \\ \hline 355 \end{array}$$

$$\begin{array}{r} 0.53 \\ 7 \overline{)3.715} \end{array}$$

The value of the Q coin is 4.

The value of the E coin is 53.

Rationale: Student demonstrates a considerable understanding of the relationships between important elements of the problem; utilizes an appropriate problem solving process to determine the value of the coins but makes a minor calculation error (4¢ for the "Q" coins) and follows through with the error.

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Show your work.

$$\begin{array}{r} 5 \\ 13 \overline{)65} \\ \underline{65} \\ 0 \end{array}$$

$$\begin{array}{r} 0.50 \\ 7 \overline{)3.50} \\ \underline{35} \\ 00 \end{array}$$

The value of the Q coin is \$0.05.

The value of the E coin is \$0.5.

Rationale: Student provides a solution process that is nearly complete and identifies the relationship between important elements of the problem; arrives at an accurate solution but does not show the use of \$3.75 (e.g., $5 \times 0.5 = 0.25$ and $\$3.75 - 0.25 = \3.50).

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When Jennifer and Tom visit another country, they find two types of coins are used there, one with a Q on it and one with an E on it. Jennifer has 13 Q coins and Tom has 5 Q coins and 7 E coins. If Jennifer's coins have a total value of \$0.65 and Tom's coins have a total value of \$3.75, what is the value of each type of coin?

Show your work.

Jenn

13 Q coins
 $\times 5¢$
65¢
 $\frac{5}{13} \overline{)65¢}$
65
0

The value of the Q coin is 5¢.

The value of the E coin is 50¢.

Tom

5 E coins
 $\times 5¢$
25¢
 $\frac{50}{7} \overline{)350}$
350
0

\$3.75

Rationale: Student identifies all of the important elements of the problem and provides a complete solution process; provides an appropriate conclusion with thorough and insightful supporting evidence.

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When Jennifer and Tom visit another country, they find two types of coins are used there; one with a Q on it and one with an E on it. Jennifer has 13 Q coins and Tom has 5 Q coins and 7 E coins. If Jennifer's coins have a total value of \$0.65 and Tom's coins have a total value of \$3.75, what is the value of each type of coin?

Show your work.

Q and E coins

$$13 \text{ Q coins} = \$0.65$$

$$5 \text{ Q coins} + 7 \text{ E coins} = \$3.75$$

$$5 \text{ Q coins} = \$0.25$$

$$\$0.65 \div 13 = \$0.05$$

$$\text{so } \$3.50 \div 7 = \$0.50$$

The value of E coins
is greater than Q coins.

The value of the Q coin is \$0.05.

The value of the E coin is \$0.50.

Rationale: Student demonstrates a thorough understanding of the relationship between all important elements of the problem; accurately solves the value of the Q coins and provides an accurate solution for the E coins. Minor omission of $\$3.75 - 0.25 = \3.50 .

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| 10 | <p>Problem-solving process to demonstrate an understanding of mean and to use the mean to compare two sets of related data shows limited effectiveness due to</p> <ul style="list-style-type: none"> • minimal evidence of a solution process • limited identification of important elements of the problem • too much emphasis on unimportant elements of the problem • no conclusions presented • conclusion presented without supporting evidence |
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Assessments of Reading, Writing and Mathematics, Junior Division
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Question 28

10

Kyla is a member of the starting lineup of the school's basketball team. The heights of the other starting players are shown below.

160 cm, 156 cm, 148 cm, 147 cm

The mean height of the starting lineup is 152.4 cm. What is Kyla's height?

Show your work.

$$152.4 \div 4 = 38.1$$

Kyla's height is 38.1.

Rationale: Student demonstrates limited identification of important elements of the problem; divides the given mean by the number of players given in the problem resulting in an unreasonable solution.

Assessments of Reading, Writing and Mathematics, Junior Division
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Question 28

20

Kyla is a member of the starting lineup of the school's basketball team. The heights of the other starting players are shown below.

160 cm, 156 cm, 148 cm, 147 cm

The ~~mean~~^{average} height of the starting lineup is 152.4 cm. What is Kyla's height?

Show your work.

$$\begin{aligned} \text{Mean} &= 152.4 \text{ cm} \\ 160 \text{ cm} + 156 \text{ cm} + 148 \text{ cm} + 147 \text{ cm} &= 611 \text{ cm} \div 4 = \\ 152.75 \text{ cm} \end{aligned}$$

Kyla's height is 152.75 cm

Rationale: Student identifies some of the important elements of the problem; adds given heights and divides by number of players given but does not relate/recognize results of 152.75 to 152.4 as the given mean.

Assessments of Reading, Writing and Mathematics, Junior Division
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Question 28

20

Kyla is a member of the starting lineup of the school's basketball team. The heights of the other starting players are shown below.

160 cm, 156 cm, 148 cm, 147 cm

The mean height of the starting lineup is 152.4 cm. What is Kyla's height?

Show your work.

$$\begin{array}{r} 160 \\ 156 \\ 148 \\ +147 \\ \hline 611 \end{array}$$

$$611 \div 5 = 122.2$$

Kyla's height is 122.2 cm.

Rationale: Student demonstrates some understanding of the relationship between important elements of the problem; acknowledges "5" students and shows some understanding of mean by adding given heights and then dividing by 5.

Assessments of Reading, Writing and Mathematics, Junior Division
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Kyla is a member of the starting lineup of the school's basketball team. The heights of the other starting players are shown below.

160 cm, 156 cm, 148 cm, 147 cm

The mean height of the starting lineup is 152.4 cm. What is Kyla's height?

Show your work.

$$160 \text{ cm} + 156 \text{ cm} + 148 \text{ cm} + 147 \text{ cm} + 151 \text{ cm} = 762 \text{ cm}$$
$$762 \text{ cm} \div 5 = 152.4$$

Kyla's height is 151 cm.

Rationale: Student demonstrates a considerable understanding of the relationships between important elements of the problem; inserts 151 and shows that this total result in the given mean by dividing by 5 but no evidence of where 151 comes from.

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30

Kyla is a member of the starting lineup of the school's basketball team. The heights of the other starting players are shown below.

160 cm, 156 cm, 148 cm, 147 cm

The mean height of the starting lineup is 152.4 cm. What is Kyla's height?

Show your work.

$$\begin{array}{r} 160 \\ 156 \\ 148 \\ +147 \\ \hline 611 \end{array}$$

$$\begin{array}{r} 611 \\ +151 \\ \hline 762 \end{array}$$

$$\begin{array}{r} 152 \\ 5 \overline{) 762} \\ \underline{5} \\ 26 \\ \underline{25} \\ 12 \\ \underline{10} \\ 2 \end{array}$$

Kyla's height is 151 cm.

Rationale: Student demonstrates a considerable understanding of the relationships between the important elements of the problem; no evidence where the 151 came from.

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40

Kyla is a member of the starting lineup of the school's basketball team. The heights of the other starting players are shown below.

160 cm, 156 cm, 148 cm, 147 cm

The mean height of the starting lineup is 152.4 cm. What is Kyla's height?

Show your work.

I know:

- The heights of the other players are 160 cm, 156 cm, 148 cm, 147 cm
- The mean height of the lineup is 152.4 cm

How much she's height?

$$\begin{array}{r} 160 \\ 156 \\ 148 \\ + 147 \\ \hline 611 \text{ cm} \end{array}$$

$$\begin{array}{r} 152.4 \\ \times \quad 5 \\ \hline 762.0 \end{array}$$

$$\begin{array}{r} 762 \\ - 611 \\ \hline 151 \text{ cm} \end{array}$$

Kyla's height is 151 cm.

Rationale: Student demonstrates a complete solution process and arrives at the correct height for Kayla.

**Assessments of Reading, Writing and Mathematics, Junior Division
Anchor Set and Rationales for Mathematics Open-Response
Question 28**

40

Kyla is a member of the starting lineup of the school's basketball team. The heights of the other starting players are shown below.

160 cm, 156 cm, 148 cm, 147 cm

The mean height of the starting lineup is 152.4 cm. What is Kyla's height?

Show your work.

$$\begin{array}{r}
 160 \\
 156 \\
 148 \\
 +147 \\
 \hline
 611
 \end{array}$$

in total

other players

$$\begin{array}{r}
 611 \\
 +151 \\
 \hline
 762
 \end{array}$$

estimated height

$$\begin{array}{r}
 152.4 \\
 5 \cancel{) 762} \\
 \underline{- 50} \\
 26 \\
 \underline{- 25} \\
 12 \\
 \underline{- 10} \\
 2
 \end{array}$$

Kyla's height is 151 cm tall

I took a * like 150 and added them all together I got 152.2. Then I just kept adding until I got an answer of 151cm tall.

Rationale: Student demonstrates a complete solution process; uses guess and check to arrive at the correct height for Kayla.

Question 29

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| 10 | <p>Application of knowledge and skills to represent, compare, and order fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers shows limited effectiveness due to</p> <ul style="list-style-type: none"> • misunderstanding of concepts • incorrect selection or misuse of procedures |
| 20 | <p>Application of knowledge and skills to represent, compare, and order fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers shows some effectiveness due to</p> <ul style="list-style-type: none"> • partial understanding of the concepts • errors and/or omissions in the application of the procedures |
| 30 | <p>Application of knowledge and skills to represent, compare, and order fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers shows considerable effectiveness due to</p> <ul style="list-style-type: none"> • an understanding of most of the concepts • minor errors and/or omissions in the application of the procedures |
| 40 | <p>Application of knowledge and skills to represent, compare, and order fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers shows a high degree of effectiveness due to</p> <ul style="list-style-type: none"> • a thorough understanding of the concepts • an accurate application of the procedures (any minor errors and/or omissions do not detract from the demonstration of a thorough understanding) |

Assessments of Reading, Writing and Mathematics, Junior Division
Anchor Set and Rationales for Mathematics Open-Response
Question 29

10

Write the following fractions in order from least to greatest.

$$\frac{3}{2}, \frac{2}{3}, \frac{1}{4}, \frac{4}{5}$$

Explain your thinking.

$$\frac{1}{4}, \frac{2}{3}, \frac{3}{2}, \frac{4}{5}$$

I think it is this way because starting from the top makes more sense.

Rationale: Student demonstrates a misunderstanding of concepts; orders numerators from least to greatest with no consideration of denominators.

Assessments of Reading, Writing and Mathematics, Junior Division
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20

Write the following fractions in order from least to greatest.

$$\frac{3}{2}, \frac{2}{3}, \frac{1}{4}, \frac{4}{5}$$

Explain your thinking.

$$\textcircled{1} \frac{3}{2}, \frac{2}{3}, \frac{1}{4}, \frac{4}{5}$$

$$\textcircled{2} 150\% \quad 33.3\% \quad 25\% \quad 20\%$$

$$\textcircled{3} \frac{4}{5}, \frac{1}{4}, \frac{2}{3}, \frac{3}{2}$$

Rationale: Student demonstrates a partial understanding of the concepts with errors in the application of the procedures; converts fractions to percents incorrectly and orders them inaccurately based on their work.

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Question 29

20

Write the following fractions in order from least to greatest.

$$\frac{3}{2}, \frac{2}{3}, \frac{1}{4}, \frac{4}{5}$$

Explain your thinking.

$$\frac{1}{4} \frac{4}{5} \frac{2}{3} \left(\frac{3}{2}\right) = 1\frac{1}{2}$$

$\frac{1}{4}$ is the smallest and $\frac{3}{2}$ is the biggest

Rationale: Student demonstrates a partial understanding of the concepts with omissions in the application of the procedures; does not provide supporting evidence as to why $\frac{1}{4}$ is the smallest and $\frac{3}{2}$ is the biggest or for the remaining order.

Assessments of Reading, Writing and Mathematics, Junior Division
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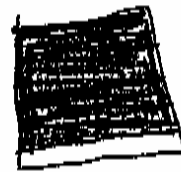
30

Write the following fractions in order from least to greatest.

$$\frac{3}{2}, \frac{2}{3}, \frac{1}{4}, \frac{4}{5}$$

Explain your thinking.

$$\frac{1}{4}, \frac{2}{3}, \frac{4}{5}, \frac{3}{2}$$



I know that $\frac{3}{2}$ is the biggest because the higher number is on top and $\frac{1}{4}$ half is the smallest from diagram. ↑

At the top is a diagram.

Rationale: Student demonstrates an understanding of most of the concepts with minor errors and omissions in the application of the procedures; uses diagrams that have equal parts to represent 2 of the fractions. Although the fractions have been ordered correctly, their diagrams do not explain why $\frac{4}{5}$ is greater than the other since $\frac{4}{5}$ is not represented with the same whole.

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30

Write the following fractions in order from least to greatest.

$$\frac{3}{2}, \frac{2}{3}, \frac{1}{4}, \frac{4}{5}$$

Explain your thinking.



$$\frac{1}{4}, \frac{2}{3}, \frac{3}{2}, \frac{4}{5}$$

Rationale: Student demonstrates an understanding of most of the concepts with minor errors in the application of the procedures; the illustrations correctly represent the fractions, but they are unable to use them to accurately order the fractions.

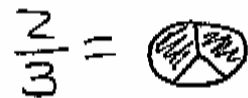
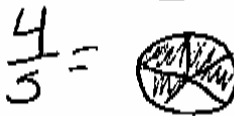
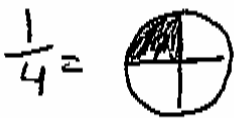
Assessments of Reading, Writing and Mathematics, Junior Division
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Write the following fractions in order from least to greatest.

$$\frac{3}{2}, \frac{2}{3}, \frac{1}{4}, \frac{4}{5}$$

Explain your thinking.



Least to greatest = $\frac{1}{4}, \frac{2}{3}, \frac{4}{5}, \frac{3}{2}$

Rationale: Student demonstrates a thorough understanding of the concepts and accurate application of the procedures; represents fractions accurately (using diagrams) and orders them correctly.

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40

Write the following fractions in order from least to greatest.

$$\frac{3}{2}, \frac{2}{3}, \frac{1}{4}, \frac{4}{5}$$

| | | | | | |
|---------------------------------|----|---------------|---------------|---------------|---------------|
| Explain your thinking. | | $\frac{1}{4}$ | $\frac{2}{3}$ | $\frac{4}{5}$ | $\frac{3}{2}$ |
| $\frac{3}{2} = 3 \div 2 = 1.5$ | 4. | | | | |
| $\frac{2}{3} = 2 \div 3 = 0.67$ | 2 | | | | |
| $\frac{1}{4} = 1 \div 4 = 0.25$ | 1. | | | | |
| $\frac{4}{5} = 4 \div 5 = 0.80$ | 3 | | | | |

Rationale: Student demonstrates a thorough understanding of the concepts and accurate application of the procedures; converts fractions to percentages and orders them correctly.

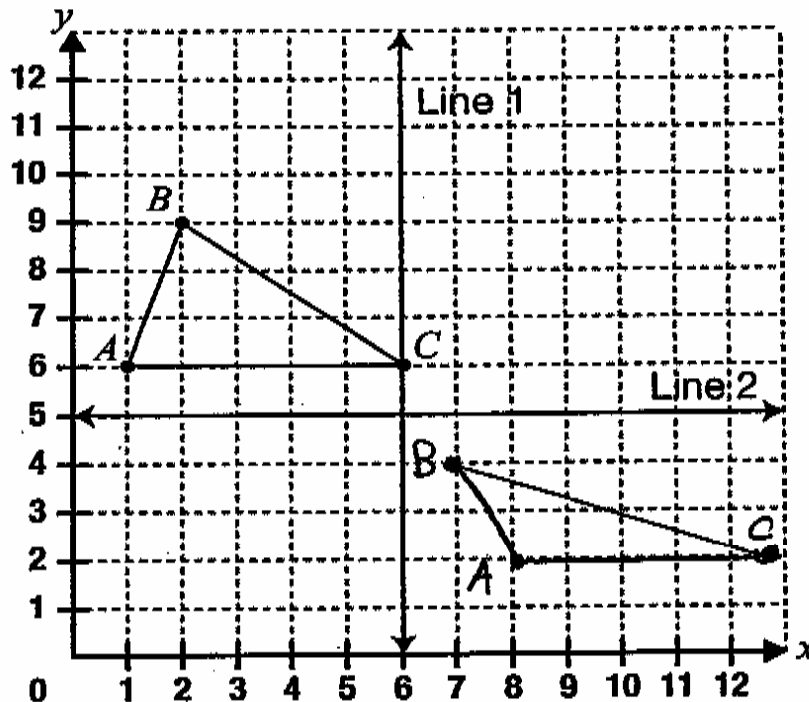
Question 30

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| 10 | <p>Problem-solving process to create and analyse designs made by reflecting, translating, and/or rotating a shape, or shapes, by 90° or 180° shows limited effectiveness due to</p> <ul style="list-style-type: none"> • minimal evidence of a solution process • limited identification of important elements of the problem • too much emphasis on unimportant elements of the problem • no conclusions presented • conclusion presented without supporting evidence |
| 20 | <p>Problem-solving process to create and analyse designs made by reflecting, translating, and/or rotating a shape, or shapes, by 90° or 180° shows some effectiveness due to</p> <ul style="list-style-type: none"> • an incomplete solution process • identification of some of the important elements of the problem • some understanding of the relationships between important elements of the problem • simple conclusions with little supporting evidence |
| 30 | <p>Problem-solving process to create and analyse designs made by reflecting, translating, and/or rotating a shape, or shapes, by 90° or 180° shows considerable effectiveness due to</p> <ul style="list-style-type: none"> • a solution process that is nearly complete • identification of most of the important elements of the problem • a considerable understanding of the relationships between important elements of the problem • appropriate conclusions with supporting evidence |
| 40 | <p>Problem-solving process to create and analyse designs made by reflecting, translating, and/or rotating a shape, or shapes, by 90° or 180° shows a high degree of effectiveness due to</p> <ul style="list-style-type: none"> • a complete solution process • identification of all important elements of the problem • a thorough understanding of the relationships between all of the important elements of the problem • appropriate conclusions with thorough and insightful supporting evidence |

Assessments of Reading, Writing and Mathematics, Junior Division
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10

The drawing below shows a grid with $\triangle ABC$, Line 1 and Line 2. On the grid, reflect $\triangle ABC$ across Line 1 and then reflect the new triangle across Line 2.



Describe a rotation that would have the same result as these two reflections.

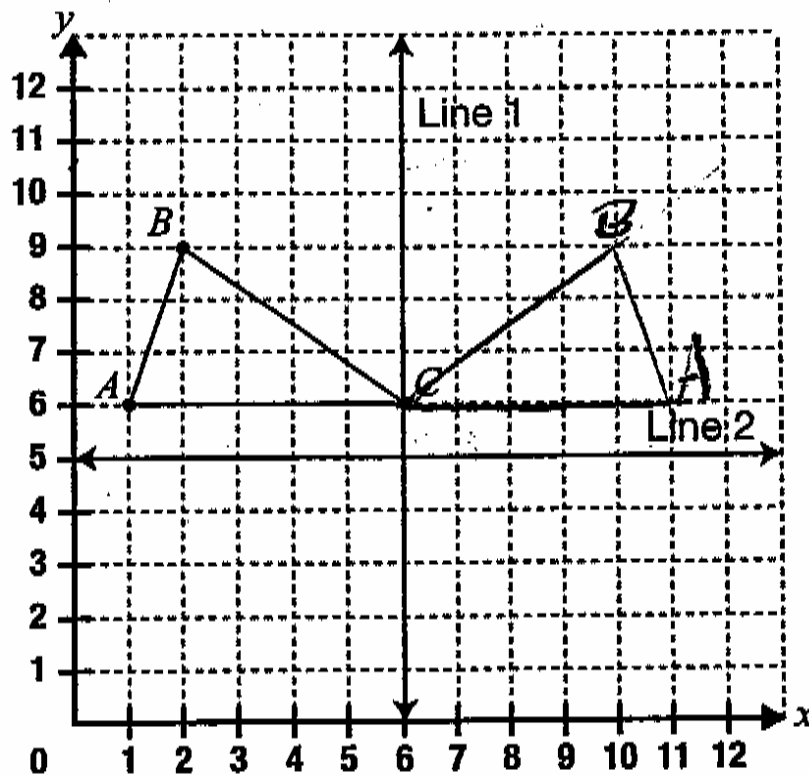
The dot is the centre
 of rotation the
 reflection of both
 shape will be equal.

Rationale: Student demonstrates minimal evidence of a solution process; unable to recreate scalene triangle and does not complete drawings according to instructions.

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The drawing below shows a grid with $\triangle ABC$, Line 1 and Line 2. On the grid, reflect $\triangle ABC$ across Line 1 and then reflect the new triangle across Line 2.



Describe a rotation that would have the same result as these two reflections.

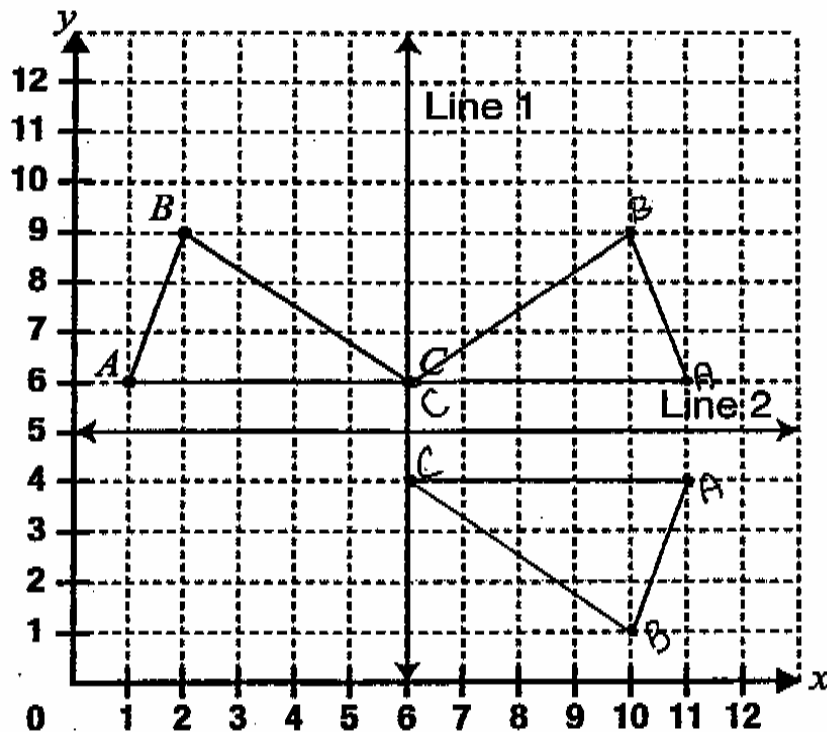
If I did a rotation to make this reflection
it would be a 180° of a rotation.

Rationale: Student provides limited identification of important elements of the problem; completes first step of transformation drawing first reflected triangle, but does not complete second reflection. The rotation identified will not result in the drawing.

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The drawing below shows a grid with $\triangle ABC$, Line 1 and Line 2. On the grid, reflect $\triangle ABC$ across Line 1 and then reflect the new triangle across Line 2.



Describe a rotation that would have the same result as these two reflections.

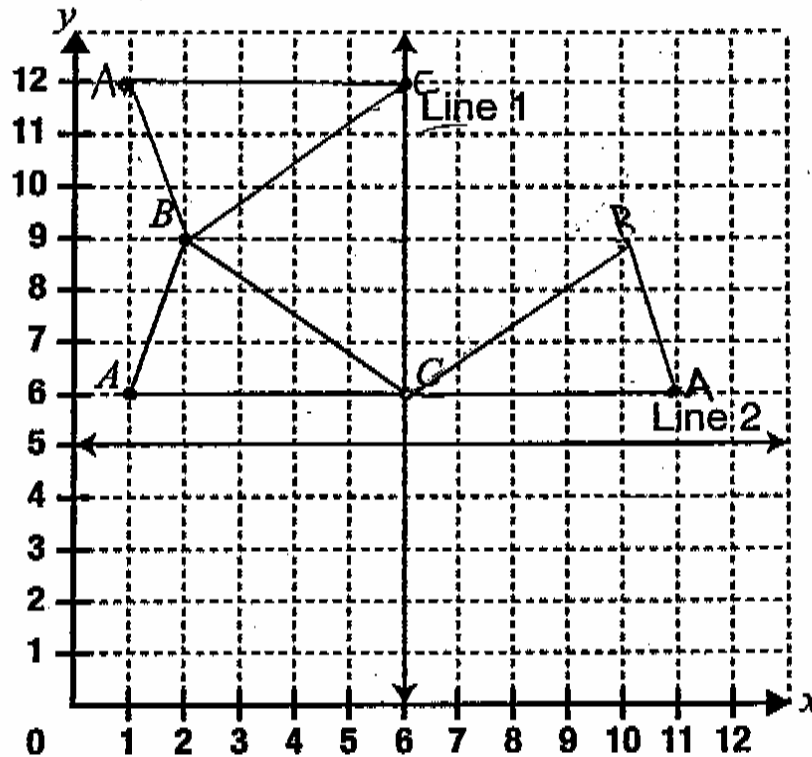
Another rotation that would have the same result as these two reflections is to flip $\triangle ABC$ on line 1 on point C. Then slide down $\triangle ABC$ two rows and flip it on line C, and A.

Rationale: Student demonstrates some understanding of the relationship between important elements of the problem; accurate reflections but is unable to describe a rotation that would have the same results as the two reflections. Another transformation is described instead.

Assessments of Reading, Writing and Mathematics, Junior Division
Anchor Set and Rationales for Mathematics Open-Response
Question 30

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The drawing below shows a grid with $\triangle ABC$, Line 1 and Line 2. On the grid, reflect $\triangle ABC$ across Line 1 and then reflect the new triangle across Line 2.



Describe a rotation that would have the same result as these two reflections.

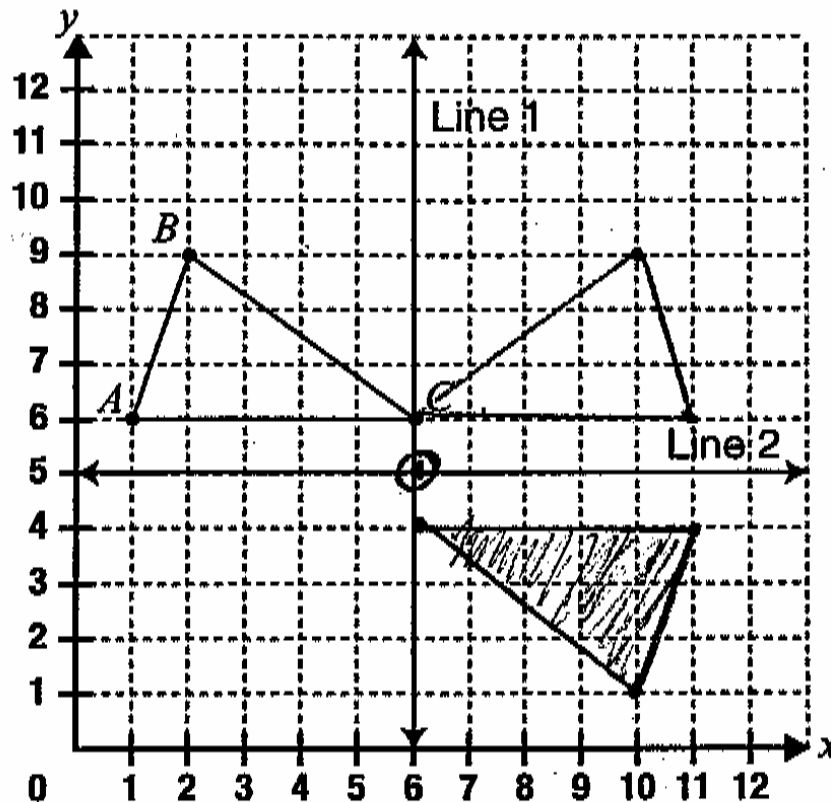
I would have to rotate the triangle 4 times for both reflections of Line 1 and Line 2.

Rationale: Student identified some of the important elements of the problem; makes two reflections but one of the reflections is inaccurate. Stated rotation is incorrect.

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Question 30**

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The drawing below shows a grid with $\triangle ABC$, Line 1 and Line 2. On the grid, reflect $\triangle ABC$ across Line 1 and then reflect the new triangle across Line 2.



Describe a rotation that would have the same result as these two reflections.

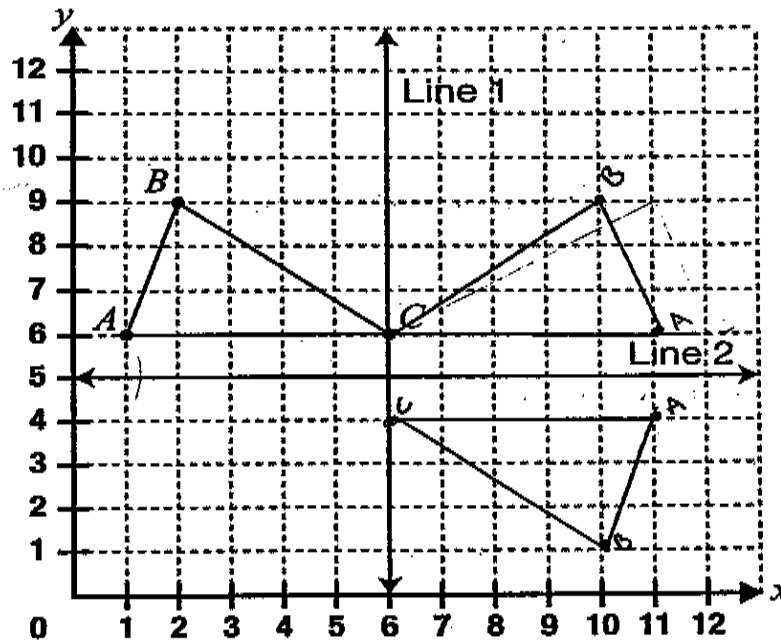
⊙ = rotation point

Rationale: Student provides a solution process that is nearly complete; accurate reflections and identifies the rotation point (6, 5) but not the 180° rotation either clockwise or counter-clockwise.

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The drawing below shows a grid with $\triangle ABC$, Line 1 and Line 2. On the grid, reflect $\triangle ABC$ across Line 1 and then reflect the new triangle across Line 2.



Describe a rotation that would have the same result as these two reflections.

$\circ\circ$ A $\frac{1}{2}$ turn clockwise
 or counterclockwise
 will get you the
 same result as the
 two reflections

$\frac{1}{2}$ turn
 clockwise

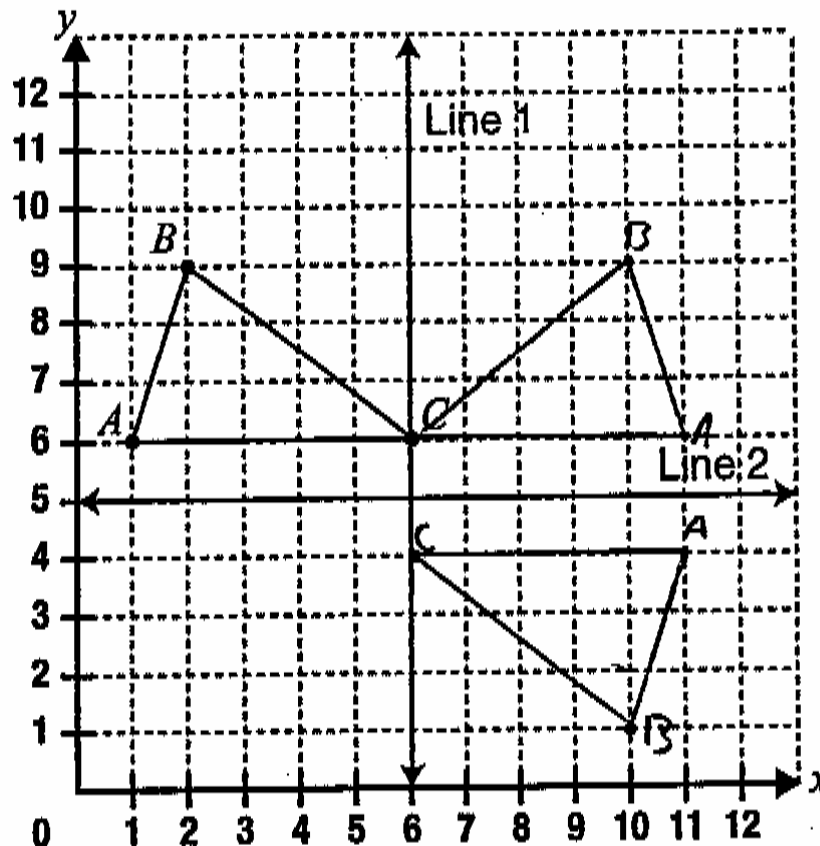
$\frac{1}{2}$ turn
 counter clockwise

Rationale: Student provides a solution process that is nearly complete; identifies the rotation required $\frac{1}{2}$ turn either CW or CCW but not the point of rotation.

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The drawing below shows a grid with $\triangle ABC$, Line 1 and Line 2. On the grid, reflect $\triangle ABC$ across Line 1 and then reflect the new triangle across Line 2.



Describe a rotation that would have the same result as these two reflections.

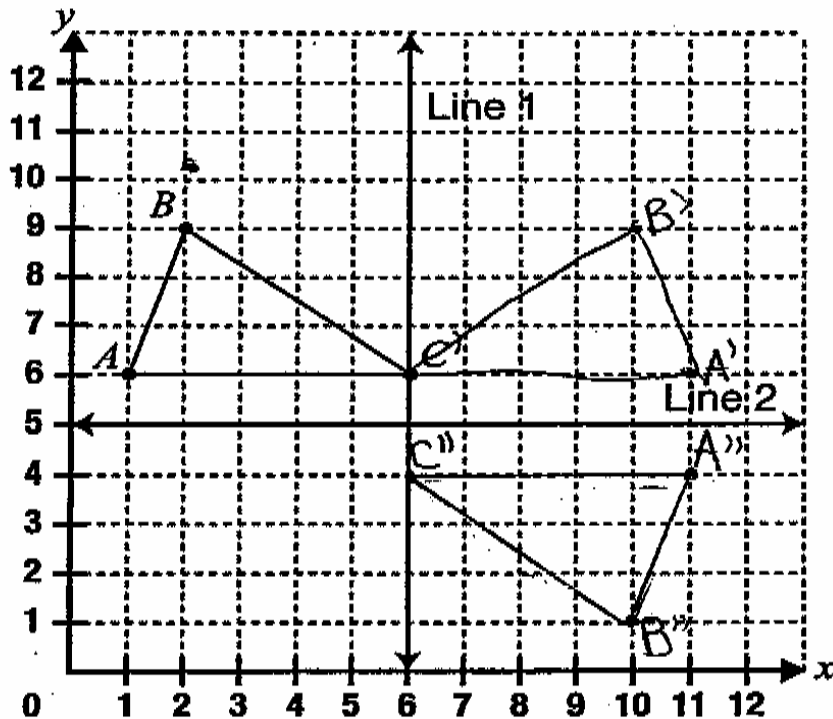
rotate 180° clockwise turn centre (6, 6) slide down 2 sq,

Rationale: Student identifies most of the important elements of the problem; reflections are correct and names angle of rotation but incorrectly identifies point of rotation as (6, 6) instead of (6, 5). Uses a 2 step transformation.

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Question 30

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The drawing below shows a grid with $\triangle ABC$, Line 1 and Line 2. On the grid, reflect $\triangle ABC$ across Line 1 and then reflect the new triangle across Line 2.



Describe a rotation that would have the same result as these two reflections.

You rotate the first figure
one-hundred eighty degrees
clockwise on about (6,5).

Rationale: Student provides a complete solution process; accurate reflections with correct identification of point of rotation and angle 180° CW or CCW (both are correct).