

**Practice Test Answer and Alignment Document**  
**Mathematics: Grade 8**  
**Pencil-and-Paper**

The following pages include the answer keys for all machine-scored items. A sample student response for the top score is included for all hand-scored constructed response items.

- Some answer keys include one possible sample student response. Other valid methods for solving the problem can earn full credit unless a specific method is required by the item.
- In items where the scores are awarded for full and partial credit, the definition of partial credit will be confirmed during range-finding (reviewing sets of real student work).
- If students make a computation error, they can still earn points for reasoning or modeling.

**Section 1**

Item Number	Answer Key	Evidence Statement Key/ Content Scope
1.	C	8.EE.A.1
2.	A, C, E	8.F.A.1-1
3.	B	8.EE.A.2
4.	C, D, G	8.G.A.5
5.	D	8.NS.A.2
6.	16	8.EE.C.7b
7.	A, B, E	8.NS.A.1
8.	C	8.F.A.3-1
9.	40	8.EE.A.3
10.	B	8.G.A.1a
11.	A	8.EE.C.8a

<b>Item Number</b>	<b>Answer Key</b>	<b>Evidence Statement Key/ Content Scope</b>
12.	D	8.SP.A.2
13.	A	8.EE.C.7a
14.	A	8.F.B.5-1

## Section 2

Item Number	Answer Key	Evidence Statement Key/ Content Scope
1.	2.5	8.EE.C.8c
2.	B, D, E	8.R.2a 8.F.A.3-1
3.	D	8.M.1 8.EE.C.8a 8.M.1d
4.	<p><b><u>Sample Top Score Response</u></b></p> <p><b>Part A:</b></p> <p>Linda’s claim is incorrect because she said the slope is run over rise. The slope is actually rise over run or the change in <math>y</math> over the change in <math>x</math>.</p> <p>The slope of <math>\overline{PR}</math> is <math>-\frac{2}{3}</math> because</p> $\frac{3 - (-1)}{-3 - 3} = \frac{4}{-6} = -\frac{2}{3}.$ <p><b>Part B:</b></p> <p>Triangles <math>MNP</math> and <math>QRT</math> are similar because the corresponding angles at <math>N</math> and <math>R</math> and the corresponding angles at <math>P</math> and <math>T</math> are congruent, since they are corresponding angles where two parallel lines are intersected by a transversal. Because the triangles are similar, the ratios of corresponding sides of the triangles are equal. This means <math>\frac{MN}{MP} = \frac{QR}{QT}</math>, and shows that the slopes of <math>NP</math> and <math>RT</math> are equal.</p> <p><b>Refer to the Holistic Rubric for 4-Point Reasoning Constructed Response Items for score point information.</b></p>	8.R.1e 8.EE.B.6-1
5.	18	8.M.1 8.G.B.7 8.M.1a 8.M.1b 8.M.1c

<b>Item Number</b>	<b>Answer Key</b>	<b>Evidence Statement Key/ Content Scope</b>
6.	A, D	8.F.A.2
7.	B	8.EE.B.6-1

## Section 3

Item Number	Answer Key	Evidence Statement Key/ Content Scope
1.	C	8.G.B.7
2.	B, C, D	8.SP.A.4
3.	<p><b><u>Sample Top Score Response</u></b></p> <p>Let <math>d</math> represent the number of days student K reads.</p> <p>The number of pages student J reads is <math>20d + 40</math> and the number of pages student K reads is <math>30d</math>. The equation <math>20d + 40 = 30d</math> could be used to determine the number of days after student J starts reading when both students have read the same number of pages.</p> <p>Solving for <math>d</math> results in <math>d = 4</math>, which means the students will have read the same number of pages 4 days after student K starts reading.</p> <p><b>Refer to the Holistic Rubric for 3-Point Modeling Constructed Response Items for score point information.</b></p>	<p>8.M.1 8.EE.C.7b 8.M.1b 8.M.1c</p>
4.	B	<p>8.M.1 8.EE.B.5-1 8.M.1a</p>

Item Number	Answer Key	Evidence Statement Key/ Content Scope
5.	<p><b><u>Sample Top Score Response</u></b></p> <p>The length of leg <math>PQ</math> can be found using <math>\sqrt{3^2 + 4^2}</math>, which is equal to 5 units.</p> <p>The length of leg <math>QR</math> can be found using <math>\sqrt{6^2 + 8^2}</math>, which is equal to 10 units.</p> <p>It is given that the length of hypotenuse <math>PR</math> is <math>\sqrt{125}</math> units.</p> <p>Then, using the Pythagorean Theorem where <math>a = 5</math> and <math>b = 10</math> to verify that triangle <math>PQR</math> is a right triangle:</p> $a^2 + b^2 = c^2$ $5^2 + 10^2 = c^2$ $25 + 100 = c^2$ $125 = c^2$ $\sqrt{125} = c$ <p>Since <math>c = \sqrt{125}</math> and <math>PR = \sqrt{125}</math>, triangle <math>PQR</math> is a right triangle.</p> <p><b>Refer to the Holistic Rubric for 3-Point Reasoning Constructed Response Items for score point information.</b></p>	<p>8.R.3d 8.G.B.7 8.G.B.8</p>
6.	A	<p>8.R.1d 8.EE.C.8c</p>
7.	0	8.EE.C.8b-1

## Section 4

Item Number	Answer Key	Evidence Statement Key/ Content Scope
1.	D	8.G.C.9
2.	A	8.EE.B.5-2
3.	D	8.R.3b 8.G.A.5
4.	<p><b><u>Sample Top Score Response</u></b></p> <p><b>Part A:</b></p> $d^2 = \frac{1}{36}$ $d = \sqrt{\frac{1}{36}}$ $d = \frac{1}{6}$ <p><b>Part B:</b></p> $v = d^3$ $v = \left(\frac{1}{6}\right)^3$ $v = \frac{1}{216}$ <p><b>Refer to the Holistic Rubric for 4-Point Modeling Constructed Response Items for score point information.</b></p>	8.M.1 8.EE.A.1 8.M.1b 8.M.1c
5.	C	8.R.1a 8.EE.B.6-2
6.	B	8.M.1 8.EE.C.8c 8.M.1b
7.	C	8.F.B.4