

Practice Test Answer and Alignment Document

Mathematics: Grade 8

Online

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.	Two of the following points should be plotted: $(-9, 2)$, $(-6, 1)$, $(-3, 0)$, $(0, -1)$, $(3, -2)$, $(6, -3)$, $(9, -4)$	8.F.A.1-2
3.	B	8.EE.A.2
4.	The following angles should be selected: The angle vertical to angle 1. The corresponding angle to angle 1. The angle vertical to this corresponding angle.	8.G.A.5
5.	D	8.NS.A.2
6.	16	8.EE.C.7b

Item Number	Answer Key	Evidence Statement Key/ Content Scope
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.	The solution is $[(2, 7)]$ because the solution to the system must [satisfy both equations simultaneously].	8.EE.C.8a
12.	D	8.SP.A.2
13.	<p>The equation $9x + 7 = 8x + 7$ has exactly one solution.</p> <p>The equation $8x + 7 = 8x + 7$ has infinitely many solutions.</p> <p>The equation $9x + 5 = 9x + 7$ has no solution.</p>	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

Item Number	Answer Key	Evidence Statement Key/ Content Scope
4.	<p><u>Sample Top Score Response</u></p> <p>System J can be solved using the substitution method since the second equation is already solved for y.</p> $2x + 5(-1) = 16$ $2x - 5 = 16$ $2x = 21$ $x = 10.5$ <p>System K can be solved by multiplying the first equation by -2 so that the coefficients of the x terms are opposite numbers.</p> $-2(3x + 4y) = -2(10)$ $-6x - 8y = -20$ <p>Substituting this equation for the first equation, System K then becomes</p> $\begin{cases} -6x - 8y = -20 \\ 6x + 8y = 5 \end{cases}$ <p>The next step is to add the left sides of the two equations and add the right sides of the two equations and set the sums equal.</p> $-6x - 8y + (6x + 8y) = -20 + 5$ $-6x - 8y + 6x + 8y = -15$ $-6x + 6x - 8y + 8y = -15$ $0 + 0 = -15$ $0 = -15$ <p>Since the resulting equation has no variables and is a false statement, this means System K has no solution.</p> <p>Refer to the Holistic Rubric for 4-Point Reasoning Constructed Response Items for score point information.</p>	<p>8.R.1c 8.EE.C.8b-1 8.EE.C.8b-3</p>

Item Number	Answer Key	Evidence Statement Key/ Content Scope
5.	18	8.M.1 8.G.B.7 8.M.1a 8.M.1b 8.M.1c
6.	<p>The slope of the graph of function J is [greater than] the slope of the graph of function K.</p> <p>The y-intercept of the graph of function J is [less than] the y-intercept of the graph of function K.</p>	8.F.A.2
7.	B	8.EE.B.6-1

Section 3

Item Number	Answer Key	Evidence Statement Key/ Content Scope
1.	$\frac{180}{181}$	8.G.B.7
2.	<p>The numbers in the row labeled "Hood" should be 100 for green, 70 for purple, and 170 for the total.</p> <p>The numbers in the row labeled "No Hood" should be 80 for green, 130 for purple, and 210 for the total.</p> <p>The numbers in the row labeled "Total" should be 180 for green, 200 for purple, and 380 for the total.</p>	8.SP.A.4
3.	<p><u>Sample Top Score Response</u></p> <p>Let d represent the number of days student K reads.</p> <p>The number of pages student J reads is $20d + 40$ and the number of pages student K reads is $30d$. The equation $20d + 40 = 30d$ 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 d results in $d = 4$, which means the students will have read the same number of pages 4 days after student K starts reading.</p> <p>Refer to the Holistic Rubric for 3-Point Modeling Constructed Response Items for score point information.</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><u>Sample Top Score Response</u></p> <p>The length of leg PQ can be found using $\sqrt{3^2 + 4^2}$, which is equal to 5 units.</p> <p>The length of leg QR can be found using $\sqrt{6^2 + 8^2}$, which is equal to 10 units.</p> <p>It is given that the length of hypotenuse PR is $\sqrt{125}$ units.</p> <p>Then, using the Pythagorean Theorem where $a = 5$ and $b = 10$ to verify that triangle PQR 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 $c = \sqrt{125}$ and $PR = \sqrt{125}$, triangle PQR is a right triangle.</p> <p>Refer to the Holistic Rubric for 3-Point Reasoning Constructed Response Items for score point information.</p>	8.R.3d 8.G.B.7 8.G.B.8
6.	A	8.R.1d 8.EE.C.8c
7.	([-4], [3])	8.EE.C.8b-1

Section 4

Item Number	Answer Key	Evidence Statement Key/ Content Scope
1.	D	8.G.C.9
2.	The total amount raised from selling 40 key chains is [less] than the total amount raised from selling 40 coffee cups by [2] dollars.	8.EE.B.5-2
3.	D	8.R.3b 8.G.A.5
4.	<p><u>Sample Top Score Response</u></p> <p>For company A, the hourly rate is $\frac{(150 - 60)}{(2 - 0)} = \frac{90}{2} = 45$ dollars, and the one-time delivery fee is 60 dollars.</p> <p>For company B, the hourly rate is $\frac{(240 - 40)}{(4 - 0)} = \frac{200}{4} = 50$ dollars, and the one-time delivery fee is 40 dollars.</p> <p>To determine which company offers the better price for renting a waterslide for 6 hours, I multiplied the hourly rate by 6 hours and added the one-time delivery fee.</p> <p>For company A, the calculation for the total cost is $45(6) + 60$, which results in \$330.</p> <p>For company B, the calculation for the total cost is $50(6) + 40$, which results in \$340.</p> <p>Company A offers a better price for renting a waterslide for 6 hours because they are \$10 less expensive.</p> <p>Refer to the Holistic Rubric for 4-Point Modeling Constructed Response Items for score point information.</p>	8.M.1 8.F.B.4 8.M.1c
5.	D	8.R.1a 8.EE.B.6-2

Item Number	Answer Key	Evidence Statement Key/ Content Scope
6.	$\begin{cases} 10x + 12y = 80 \\ 3x + 4y = 26 \end{cases}$ <p>or</p> $\begin{cases} 3x + 4y = 26 \\ 10x + 12y = 80 \end{cases}$	<p>8.M.1 8.EE.C.8c 8.M.1b</p>
7.	C	8.F.B.4