



Maryland Comprehensive
Assessment Program

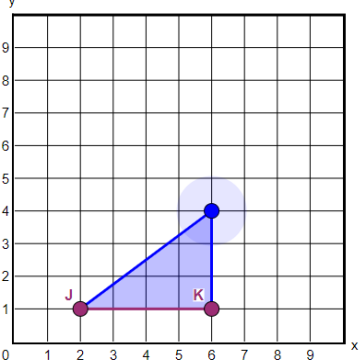
DRAFT MCAP Practice Test Answer and Alignment Document Mathematics – Grade 7 Online Practice Test

The following pages include the answer keys for all machine-scored items, as well as a sample top score response for hand-scored items. Please note that this document is still in draft form and will be posted to the MCAP mathematics practice test page (support.mdassessments.com/practice-tests/math/) when it is fully completed. The finalized document may have slight differences from what is shown below. Until the finalized form of this document is posted, please use the contents of this document to help prepare for the MCAP mathematics assessment.

As a note:

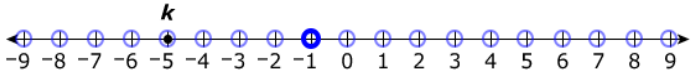
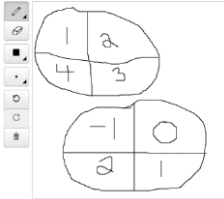
- Constructed Response Items will show an answer key with sample student responses. Other valid methods for solving the problem can earn full credit unless a specific method is required by the item.
- In Constructed Response items where scores are awarded for full and partial credit, the definition of 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	B	7.RP.A.2d
2		7.G.A.2
3	B, E	7.M.1 7.EE.B.4b 7.M.1c 7.M.1d
4	7	7.EE.B.4a-1
5	<p><u>Sample Top Score Response</u></p> <p>For the first expression: First, perform the distributive property.</p> $3.5n + 4\left(5\frac{1}{4}n - 1.5\right)$ $3.5n + 21n - 6$ <p>Then, join like terms.</p> $24.5n - 6$ <p>For the second expression: First, perform the distributive property.</p> $-21\left(\frac{2}{7} - \frac{7}{6}n\right)$ $-6 + \frac{147}{6}n$ <p>Then, rewrite the fraction as a decimal.</p> $-6 + 24.5n$ <p>The two expressions are equivalent because addition is commutative.</p> $24.5n - 6 = -6 + 24.5n$	7.R.3a 7.EE.A.1

Item Number	Answer Key	Evidence Statement Key/Content Scope												
6	<table border="1"> <thead> <tr> <th></th> <th>Proportional</th> <th>Not Proportional</th> </tr> </thead> <tbody> <tr> <td>Table J</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> </tr> <tr> <td>Table K</td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Table L</td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> </tr> </tbody> </table>		Proportional	Not Proportional	Table J	<input type="radio"/>	<input checked="" type="radio"/>	Table K	<input checked="" type="radio"/>	<input type="radio"/>	Table L	<input checked="" type="radio"/>	<input type="radio"/>	7.RP.A.2a
	Proportional	Not Proportional												
Table J	<input type="radio"/>	<input checked="" type="radio"/>												
Table K	<input checked="" type="radio"/>	<input type="radio"/>												
Table L	<input checked="" type="radio"/>	<input type="radio"/>												
7	A	7.M.1 7.G.B.6 7.M.1b												
8	51.2	7.NS.A.3												
9	<p>The median shoe size for the hockey players is <input type="text" value="1.5"/> greater than the median shoe size for the soccer players. This difference is <input type="text" value="0.9375"/> times the mean absolute deviation of either data set.</p>	7.SP.B.3												

Section 2

Item Number	Answer Key	Evidence Statement Key/Content Scope																																																			
1	3	7.RP.A.2b																																																			
2	C	7.G.B.6																																																			
3	The first mistake was made in <input type="text" value="Step 2"/> and the correct length of the garden is <input type="text" value="8"/> .	7.R.1c 7.RP.A.3-1																																																			
4		7.NS.A.1b-1																																																			
5	<p>Sample Top Score Response There are 16 possible outcomes:</p> <table border="1" data-bbox="444 894 1034 1346"> <thead> <tr> <th>Spinner 1</th> <th>Spinner 2</th> <th>Sum</th> </tr> </thead> <tbody> <tr><td>1</td><td>-1</td><td>0</td></tr> <tr><td>1</td><td>0</td><td>1</td></tr> <tr><td>1</td><td>1</td><td>2</td></tr> <tr><td>1</td><td>2</td><td>3 B</td></tr> <tr><td>2</td><td>-1</td><td>1</td></tr> <tr><td>2</td><td>0</td><td>2</td></tr> <tr><td>2</td><td>1</td><td>3 B</td></tr> <tr><td>2</td><td>2</td><td>4 B</td></tr> <tr><td>3</td><td>-1</td><td>2</td></tr> <tr><td>3</td><td>0</td><td>3 B</td></tr> <tr><td>3</td><td>1</td><td>4 B</td></tr> <tr><td>3</td><td>2</td><td>5 B</td></tr> <tr><td>4</td><td>-1</td><td>3 B</td></tr> <tr><td>4</td><td>0</td><td>4 B</td></tr> <tr><td>4</td><td>1</td><td>5 B</td></tr> <tr><td>4</td><td>2</td><td>6 A B</td></tr> </tbody> </table> <p>Player A win: they need a sum of 6. Spinning a 4 on the first spinner and a 2 on the second spinner will win. The probability of a sum of 6 is $\frac{1}{16}$.</p> <p>Player B win: they need a sum of 3 or more. There are ten ways to get a sum of at least 3. I put a "B" next to these in the table. The probability of a sum of 3 or more is $\frac{10}{16}$.</p> <p>Drawing Box</p> 	Spinner 1	Spinner 2	Sum	1	-1	0	1	0	1	1	1	2	1	2	3 B	2	-1	1	2	0	2	2	1	3 B	2	2	4 B	3	-1	2	3	0	3 B	3	1	4 B	3	2	5 B	4	-1	3 B	4	0	4 B	4	1	5 B	4	2	6 A B	7.M.1 7.SP.C.7a 7.M.1c
Spinner 1	Spinner 2	Sum																																																			
1	-1	0																																																			
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Item Number	Answer Key	Evidence Statement Key/Content Scope
6	A, C	7.G.A.3
7	D	7.R.2e 7.NS.A.3
8	<input type="text" value="28"/> $w +$ <input type="text" value="26"/>	7.EE.A.1
9	<input type="text" value="5"/> <hr/> <input type="text" value="16"/>	7.RP.A.1

Section 3

Item Number	Answer Key	Evidence Statement Key/Content Scope
1	D	7.EE.B.3
2	A	7.RP.A.2c
3	A, E	7.M.1. 7.EE.B.4a-1 7.EE.B.4a-2 7.M.1b
4	D	7.SP.A.2
5	<p><u>Sample Top Score Response</u></p> <p>The slowest pump is pump P. I know this because it is the line that is the least steep. It has a rate of 10 gallons every 2 minutes, or a unit rate of 5 gallons per minute. It took 90 minutes to fill the tub with the smaller pump. $90 \times 5 = 450$. The tub can hold 450 gallons of water.</p> <p>The fastest pump is pump K. I know this because it is the line that is the steepest. It has a unit rate of 30 gallons per minute. To fill the 450 gallon tub it will take 15 minutes since $450 \div 30 = 15$.</p>	7.R.1a 7.RP.A.1 7.RPA.2b
6	<p>The city with the greatest difference in low and high temperatures was <input type="text" value="Lima"/>.</p> <p>The city with the least difference in low and high temperatures was <input type="text" value="Helena"/>.</p>	7.NS.A.1c-2
7	214.62	7.M.1 7.EE.B.3 7.G.B.4-1 7.M.1c
8	100	7.RP.A.3-1

Section 4

Item Number	Answer Key	Evidence Statement Key/Content Scope
1	A	7.RP.A.2b
2	B	7.EE.B.4b
3	The student's work shows that <input type="text" value="one digit will repeat"/> , which means that the decimal equivalent of $\frac{1}{12}$ is <input type="text" value="0.08<math>\bar{3}</math"/> .	7.R.2d 7.NS.A.2d
4	A, D	7.EE.A.2
5	<p>Sample Top Score Response</p> <p>The current tank is represented by the L-shaped figure, formed by two connected rectangular prisms.</p> <p>The amount of water, in cubic feet, the current tank can hold is the combined volume of both prisms.</p> <p>The volume of the large rectangular prism is $2\frac{4}{5} \times 4\frac{4}{5} \times 2\frac{1}{2} = \frac{14}{5} \times \frac{24}{5} \times \frac{5}{2} = \frac{168}{5} = 33.6$ cubic feet</p> <p>The volume of the smaller rectangular prism is $2\frac{2}{5} \times 2\frac{1}{2} \times \left(5\frac{3}{5} - 2\frac{4}{5}\right) = \frac{12}{5} \times \frac{5}{2} \times \left(\frac{28}{5} - \frac{14}{5}\right) = \frac{84}{5} = 16.8$ cubic feet.</p> <p>The current tank can hold $33.6 + 16.8 = \underline{50.4}$ cubic feet</p> <p>Enlarging each dimension by 25% results in the volumes increasing as follows:</p> <p>The volume of the large rectangular prism is $\left(2\frac{4}{5} \times 1.25\right) \times \left(4\frac{4}{5} \times 1.25\right) \times \left(2\frac{1}{2} \times 1.25\right) = 65.625$ cubic feet.</p> <p>The volume of the smaller rectangular prism is $\left(2\frac{2}{5} \times 1.25\right) \times \left(2\frac{1}{2} \times 1.25\right) \times \left(\left(5\frac{3}{5} - 2\frac{4}{5}\right) \times 1.25\right) = 32.8125$ cubic feet.</p> <p>The new, larger tank can hold $65.625 + 32.8125 = \underline{98.4375}$ cubic feet of water.</p> <p>The percent increase is $\frac{98.4375 - 50.4}{50.4} = 0.953125$</p> <p style="text-align: center;"><u>The percent increase is about 95%</u></p> <p>If it takes the horses 4 days to drink from the current tank, the new tank will take: $4 * 1.95 = 7.8125$</p> <p>The horses take <u>about 8 days</u> to drink the water.</p>	7.M.1 7.RP.A.3-2 7.G.B.6 7.M.1b 7.M.1c

Item Number	Answer Key	Evidence Statement Key/Content Scope
6	<p style="text-align: center;"> Unlikely Neither likely nor unlikely Likely </p> <p style="text-align: center;"> <input type="button" value="Event L"/> <input type="button" value="Event J"/> <input type="button" value="Event K"/> </p>	7.SP.C.5
7	<p>Student A made their first mistake in <input type="text" value="Step 1"/></p> <p>Student B made their first mistake in <input type="text" value="Step 2"/></p>	7.R.3b 7.EE.B.4a-2
8	$\begin{array}{r} \boxed{-5} \\ \hline \boxed{6} \end{array}$	7.NS.A.2c
9	40	7.RP.A.1