

**Mathematics Assessment Program**

***CCR-B2***

**College and Career Readiness Mathematics**

**Scoring Rubric  
(Draft)**

These tests were developed with support from the Bill and Melinda Gates Foundation

<b>Short Tasks</b>		
<b>Q</b>	<b>Answer</b>	<b>Points</b>
1	$5 - 2\sqrt{6}$	1
2	$x^{-2.5}$	1
3	40	1
4	4	1
5	Separation distance in meters: 10, 15, 15, 10, 0, 15	1
	Sketch showing curve, slight peak between 1 & 2s to, zero at 4s and subsequent rise. 	1
<b>Total</b>		<b>6</b>

<b>T-shirt Sale</b>		<b>Rubric</b>	
		Points	Section points
1. Gives correct answer: <b>\$2.47</b>  Shows correct work such as: $3.99 + 6.99 + 5.99 = 16.97$ $16.97 - 14.50$	2	1	3
2. Gives correct answer: <b>14.56%</b> (accept 14% - 15%)  Shows correct work such as: $2.47/16.97$	2	1	3
3. Gives correct answer: <b>\$20.71</b>  Shows correct work such as: $14.50 \div 0.7$	2	2	4
<b>Total Points</b>			<b>10</b>

<b>Glasses</b>		<b>Rubric</b>	
		Points	Section points
1. Gives correct answer: $3\sqrt{3}$ or <b>5.2</b> cm Shows work such as: $h^2 = 6^2 - 3^2$	1	1	2
2.(a) Gives correct answer: <b><math>37.5\pi</math></b> or <b>118</b> cm <sup>3</sup> (b) Gives correct answer: <b><math>45\pi</math></b> or <b>141</b> cm <sup>3</sup> Shows correct work such as: $\pi \times 3^2 \times 3 + \frac{2}{3} \pi \times 3^3$ (c) Gives correct answer: <b><math>15.6\pi</math></b> or <b>49</b> or <b><math>9\sqrt{3}\pi</math></b> cm <sup>3</sup>	1	1	1
3 Gives correct answer: <b>3.5</b> cm Shows work such as: $45\pi \div 2 = 22.5\pi$ $22.5\pi - 18\pi = 4.5\pi$ $\pi \times 3^2 \times h = 4.5 \pi$ $h = 0.5$	1	3 ft	4
<b>Total Points</b>			<b>10</b>

<b>Table Tiling</b>		<b>Rubric</b>	
		Points	Section points
1.	<p>Gives correct answers: For a 40 cm by 40 cm square she will need: <b>25</b> Whole tiles</p> <p><b>12</b> Half tiles</p> <p><b>4</b> Quarter tiles</p>	<p>2</p> <p>2</p> <p>1</p>	5
2.	<p>Gives correct answers: For a table top of size 10n                      or                      For a table top of size x Whole tiles <b><math>n^2 + (n - 1)^2</math></b>                      or                      <b><math>x^2/100 + (x/10 - 1)^2</math></b></p> <p><i>Partial credit</i> Gives rule: the differences increase by 4 each time</p> <p>Half tiles <b><math>4(n-1)</math></b>                      or                      <b><math>4(x/10 - 1)</math></b></p> <p><i>Partial credit</i> Gives rule: Add 4 to the previous result</p> <p>Quarter tiles <b>4</b></p>	<p>2</p> <p>(1)</p> <p>2</p> <p>(1)</p> <p>1</p>	5
<b>Total Points</b>			<b>10</b>

<b>Temple Geometry</b>		<b>Rubric</b>	
		Points	Section points
1.	OF = radius of large circle = 2r. FD = p, so OD is 2r - p	2	2
2.	$OB^2 = DO^2 - DB^2$ $= (2r - p)^2 - p^2$ $= 4r^2 - 4pr$ <i>Partial credit for some correct work</i>	2  (1)	   2
3.	AO = r and EO = p, so AE is r - p	1	1
4.	$ED^2 = DA^2 - AE^2$ $= (r + p)^2 - (r - p)^2$ $= 4pr$ <i>Partial credit for some correct work</i>	2  (1)	   2
5.	Since $OB^2 = ED^2$ , $4r^2 - 4pr = 4pr$ $\therefore 4r^2 = 8pr$ $\therefore r = 2p$	2	2
6.	Shows that the Shaded area = $4\pi r^2 - 2\pi r^2 - 4\pi(r/2)^2 = \pi r^2$	1	1
<b>Total Points</b>			<b>10</b>

	<b>Cross Totals</b>	<b>Rubric</b>	
		Points	Section points
	<p>Gives correct answers: Possible totals are 23, 24, 25, 26, (27)</p> <p><i>Partial credit</i></p> <p>Gives 3 more correct totals (2) Gives 2 more correct totals (1)</p> <p>23 is smallest possible total with 1 in the middle square. 1</p> <p>27 is biggest possible total with 9 in the middle square. 1</p> <p>An even number in the middle square is impossible. 1</p> <p><i>Proof</i></p> <p>Gives correct reasons such as:</p> <p>The total for numbers 1 through 9 is 45. If the the magic total is T, say <math>2T = 45 + \text{the middle number.}</math> So, the middle number must be odd , that is 1, 3, 5, 7 or 9 These middle numbers are all possible. 4</p>		10
	<b>Total Points</b>		<b>10</b>