

Ohio Grade 7 Mathematics Achievement Test

March 2006

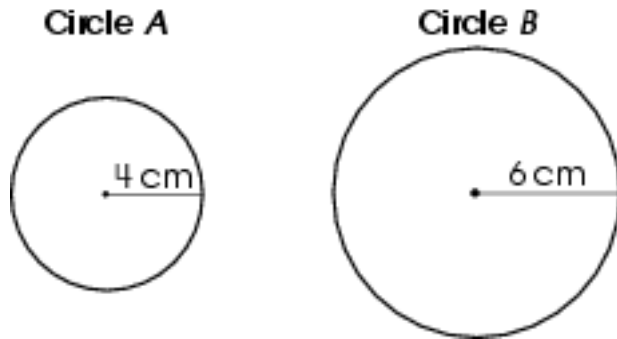
**Answer Key
&
Scoring Guidelines**

**GRADE 7 MATHEMATICS
ANSWER KEY
MARCH 2006**

Question No.	Type	Content Standard	Content Standard Benchmark(s)	Key
1		Not for Public Release		
2	Multiple Choice	Geometry and Spatial Sense	D	D
3		Not for Public Release		
4	Multiple Choice	Data Analysis and Probability	B	B
5 – 6		Not for Public Release		
7	Multiple Choice	Data Analysis and Probability	A	D
8		Not for Public Release		
9	Multiple Choice	Patterns, Functions and Algebra	J	D
10 – 15		Field test questions not used in student score		
16 – 17		Not for Public Release		
18	Multiple Choice	Patterns, Functions and Algebra	G	D
19		Not for Public Release		
20	Multiple Choice	Geometry and Spatial Sense	F	B
21		Not for Public Release		
22	Multiple Choice	Measurement	F	D
23 – 24		Not for Public Release		
25	Multiple Choice	Number, Number Sense and Operations	I	B
26	Short Answer	Geometry and Spatial Sense	E	S
27		Not for Public Release		
28	Multiple Choice	Number, Number Sense and Operations	E	A
29		Not for Public Release		
30	Multiple Choice	Measurement	D	A
31 – 32		Not for Public Release		
33	Multiple Choice	Geometry and Spatial Sense	H	A
34 – 35		Not for Public Release		
36	Short Answer	Measurement	B	S
37		Not for Public Release		
38	Multiple Choice	Patterns, Functions and Algebra	K	D
39	Multiple Choice	Data Analysis and Probability	F	C
40	Multiple Choice	Number, Number Sense and Operations	I	D
41	Short Answer	Data Analysis and Probability	I	S
42		Not for Public Release		
43	Multiple Choice	Number, Number Sense and Operations	H	D
44	Multiple Choice	Measurement	C	A
45		Not for Public Release		

Limited = 0-9; Basic = 10-15; Proficient = 16-28; Accelerated = 29-36; Advanced = 37-50
Multiple Choice = 1 point; Short Answer = 2 points; Extended Response = 4 points

26. Two circles are shown.



In your **Answer Document**, find the ratio of the circumference of Circle A to the circumference of Circle B. Show your work or provide an explanation to support your answer.

Scoring Guidelines

Points	Student Response
2	<p>The focus of the task is using proportional relationships to describe the relationship between the circumferences of similar circles. The response provides the correct ratio of one circle to the other circle with supporting work or an adequate explanation.</p> <p>Sample Correct Responses:</p> <ul style="list-style-type: none"> The ratio is 2 to 3 since the ratio of the radius is also 2 to 3. $\frac{2\pi r}{2\pi r} = \frac{2\pi 4}{2\pi 6} = \frac{2}{3}$ The ratio is 2 to 3. $\frac{2\pi r}{2\pi r} = \frac{2\pi 4}{2\pi 6} = \frac{25.12}{37.68}$ The ratio is $\frac{4}{6}$ because $2\pi \div 2\pi = 1$, and $1 \times \frac{4}{6} = \frac{4}{6}$. $\frac{2\pi r}{2\pi r} = \frac{2\pi 4}{2\pi 6} = \frac{8}{12}$ because $\frac{\pi}{\pi} = 1$
1	<p>The response provides partial evidence of using proportional relationships to describe the relationship between the circumferences of the two circles; however, the solution is incomplete or slightly flawed.</p> <p>For example, the response may:</p> <ul style="list-style-type: none"> Identify the ratio of 2 to 3 with no supporting work or explanation. Provide a correct ratio with computational errors during simplification. $\frac{2\pi r}{2\pi r} = \frac{2\pi 4}{2\pi 6} = \frac{6\pi}{12\pi} = \frac{1}{2}$ <p>Provide correct circumferences for both circles with or without work.</p>

0	<p>The response provides inadequate evidence of using proportional relationships to describe the relationship between the circumferences of the two circles. The response provides major flaws in reasoning or irrelevant information.</p> <p>For example, the response may:</p> <ul style="list-style-type: none">• State that $8\pi \times 12\pi = 96$• Provide only the circumference of one circle.• Show 8π• Be blank or state unrelated statements. <p>Copy information from the stem.</p>
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36. After a game, Coach Larson wants to serve punch to the players on her soccer team. She will mix 1 quart of ginger ale and 1 gallon of fruit punch together.

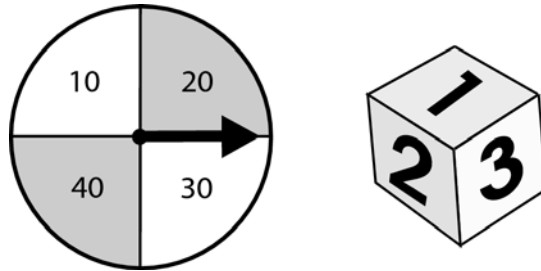
In your **Answer Document**, find the number of 8-ounce servings she can make. Show how you found the answer.

Scoring Guidelines

Other Correct Response(s):	
•	
Points	Student Response
2	<p>The focus of the task is to provide evidence of converting units within the same measurement system to figure out the number of 8-ounce servings. The response indicates the correct number of servings/cups AND provides work showing the correct conversion of units.</p> <p>1 quart = 32 ounces and 1 gallon = 128 ounces, so Coach Larson has a total of 160 ounces of punch. At 8 ounces per serving/cup ($160 \text{ oz} \div 8 \text{ oz} = 20$), she can make 20 servings/cups.</p> <p>Sample correct responses:</p> <div style="text-align: center;"> <p>□ = 1 cup (1 serving) □ = 1 quart □ □ □ □ = 1 gallon</p> </div> <ul style="list-style-type: none"> • 4 servings + 16 servings = 20 servings. There would be 20 servings in all. ▪ 1 quart = 32 ounces = 4 cups. 1 gallon = 4 quarts. $4 \times 4 = 16$. $16 + 4 = 20$. She can make 20 cups (servings). ▪ NOTE: Other conversion methods are acceptable (e.g., gallons to cups, quarts to cups).
1	<p>The response indicates partial evidence of how to convert units of measure; however, the solution is incomplete or slightly flawed.</p> <p>For example, the response may:</p> <ul style="list-style-type: none"> • Make one correct conversion and one incorrect conversion. • Indicate that one quart is 32 ounces and one gallon is the same as 128 ounces, and state that Coach Larson has 160 ounces of punch. • State the correct answer without providing work (e.g., 20 cups can be made with this recipe). • Use an inaccurate conversion but show an appropriate process.
0	<p>The response indicates inadequate evidence of how to convert units of measure. The response may have major flaws or be completely incorrect.</p> <p>For example, the response may:</p> <ul style="list-style-type: none"> • State that a gallon is larger than a quart. • Copy information that is stated in the stem.

41. A spinner and a number cube are used to play a game.

The sides of the cube are numbered 1 through 6. A player's score is the sum of the numbers on which the spinner lands and the number rolled on the cube.



In your **Answer Document**, find the probability of getting a sum greater than 25. Show your work or provide an explanation to support your answer.

Scoring Guidelines

Points	Student Response																																			
2	<p>The focus of the task is to provide evidence of computing the probabilities of compound events. The response provides the probability of getting a sum greater than 25 with supporting work or an adequate explanation. For example, the response may:</p> <ul style="list-style-type: none"> ▪ There are 24 total possibilities, and only 13 of those possibilities are sums greater than 25. The probability is $\frac{13}{24}$. ▪ A list of all of the correct answers and a probability of $\frac{13}{24}$ or 54%. <table style="margin-left: 40px; border-collapse: collapse;"> <tr> <td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>(6)</td><td></td> </tr> <tr> <td>(10)</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td> </tr> <tr> <td>(20)</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td> </tr> <tr> <td>(30)</td><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td> </tr> <tr> <td>(40)</td><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td> </tr> </table> ▪ A tree diagram and a probability of $\frac{13}{24}$ or 54%. 	(1)	(2)	(3)	(4)	(5)	(6)		(10)	11	12	13	14	15	16	(20)	21	22	23	24	25	26	(30)	31	32	33	34	35	36	(40)	41	42	43	44	45	46
(1)	(2)	(3)	(4)	(5)	(6)																															
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(30)	31	32	33	34	35	36																														
(40)	41	42	43	44	45	46																														
1	<p>The response provides partial evidence of computing the probabilities of compound events; however, the solution is incomplete or slightly flawed. For example, the response may:</p> <ul style="list-style-type: none"> • Provide the correct probability, but show no work or explanation. • Provide all 24 possibilities but does not determine the probability. • Provide the probability of a sum greater than 25 using the numbers on the spinner and only the numbers visible on the cube (1, 2, and 3): probability = $\frac{6}{12}$ or $\frac{1}{2}$. • Provide the probability of getting a sum greater than <i>or equal to</i> 25: probability = $\frac{14}{24}$. 																																			

0	<p>The response provides inadequate evidence of computing the probabilities of compound events. The response provides irrelevant information or major flaws in reasoning.</p> <p>For example, the response may:</p> <ul style="list-style-type: none">• State that no sum is greater than 25 and give a probability of 0.• State that all are greater than 25 and give a probability of 1.• Copy information from the stem.
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