# Team Bowl 8

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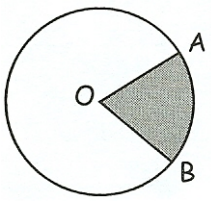
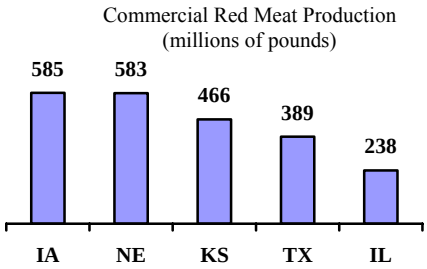
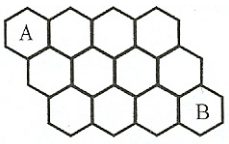
| 1. | If 20 is added to one-third of a number, the result is the double of the number. What is the number? | 1._____ |
| 2. | In the circle with center *O*, the shaded region is 20% of the area of the entire circle. What is the measure of angle *AOB*?<br>  | 2._____ degrees |
| 3. | By what percent is the commercial red meat production for Iowa (IA) greater than that for Texas (TX), according to the data shown? Express your answer to the nearest whole percent.<br>  | 3. _____ % |
| 4. | In the hexagonal grid, you may step from your current hexagon to any adjacent hexagon. How many 5-step paths are there from A to B?<br>  | 4. _____ |

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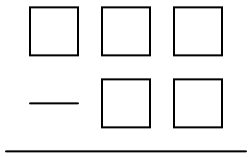
| 5. | What is the value of $x$ such that $(x, 0)$ is a solution of the equation $y = 3x - 4$? Express your answer as a common fraction. | 5. $x =$ _____ |
| 6. | A square computer screen measures 14 inches along its diagonal. How many inches long is the perimeter of the screen? Round your answer to the nearest whole number. | 6. _____ inches |
| 7. | When placing each of the digits 2, 4, 5, 6, 9 in exactly one of the boxes of this subtraction problem, what is the smallest difference that is possible?<br>  | 7. _____ |
| 8. | If $2^x = 8$, what is the value of $x^x$? | 8. _____ |

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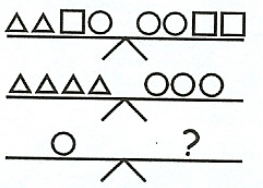
| 9. | Given $a\Theta b = \frac{a^2 - b^2}{ab}$, express $6\Theta 2$ as a common fraction. | 9. _____ |
| 10. | This square has an area of 16 sq cm. Four congruent quarter-circles are drawn inside, as shown. What is the area of the shaded portion of the square region? Express your answer in terms of π.  | 10. _____ sq cm |
| 11. | 100 pounds of chocolate is packaged into boxes each containing 1¼ pounds of chocolate. Each box is then sold for $1.75. What is the total selling price for all of the boxes of chocolate? | 11. $_____ |
| 12. | If only the squares may be used, how many squares must be placed on the right side of the third scale so that all three scales are balanced? (The distance of the objects from the centers of these scales is not relevant.)   | 12. _____ squares |

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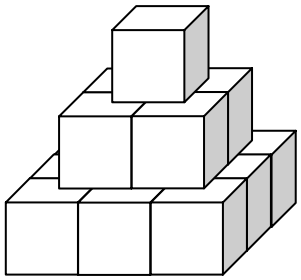
| 13. | A list of 8 numbers is formed by beginning with two given numbers. Each new number in the list is the product of the two previous numbers. Find the first number if the last three are shown:<br>___,___,___,___,___,___,16, 64, 1024 | 13. _____ |
| 14. | An artist has 14 cubes, each with an edge of 1 meter. She stands them on the ground to form a sculpture as shown. She then paints the exposed surface of the sculpture. How many square meters does she paint?<br>  | 14. _____ sq meters |
| 15. | A rectangular wall is being covered with 4-inch by 4-inch square tiles. How many tiles are needed to completely cover a wall that is 5 feet by 7 feet? | 15. _____tiles |
| 16. | What is the value of $(2x^3) \div (2x)^3$ when $x = 2008$?<br>Express your answer as a common fraction. | 16. _____ |

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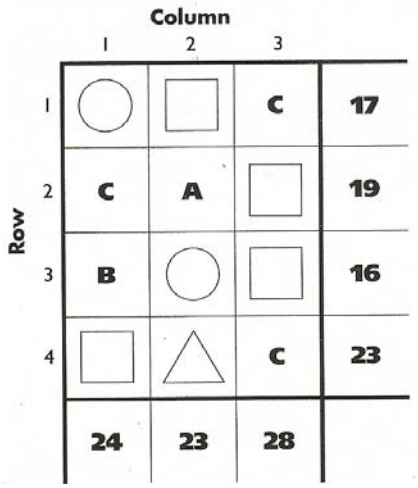
| 17. | This is a puzzle grid. Write numbers in the shapes to make the equations true.<br>Same shapes must have the same values.<br>Different shapes must have different values.<br>The number at the end of each row and each column is the sum.<br>  <br> | 17. A= _____<br>B= _____<br>C= _____ |
| 18. | There are many numbers that divide 109 with a remainder of 4. List all two-digit numbers that have that property. | 18. _____ |
| 19. | The sum of four consecutive integers is 2. What is the smallest of the four integers? | 19. _____ |
| 20. | Several points are plotted on a graph. For each point, the x-coordinate is the length of a side of a square while the y-coordinate is the perimeter of that same square. One such point is (2, 8) since a square with side length 2 units has a perimeter of 8 units. What is the slope of the line connecting the points? Express your answer in simplest form. | 20. _____ |