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| Part 1 | **Session I** |

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| 1. To solve the following expression, which operation must you perform first?  8 + 12 (7 – 5) — 6   |  |  | | --- | --- | | A | + | | B | - | | C | x | | D | — | |
| 2. One way to find all the factors of 72 is to find its prime factorization. What is the prime factorization of 72?   |  |  | | --- | --- | | F | 33 x 22 | | G | 6 x 3 x 22 | | H | 32 x 23 | | J | 4 x 2 x 32 | |
| 3. A measuring cup has lines marking the fractions m8_3.gif (612 bytes) of a cup. In what order should the lines on the cup be labeled, starting with the bottom line of the measuring cup?   |  |  | | --- | --- | | A | m8_3a.gif (486 bytes) | | B | m8_3b.gif (474 bytes) | | C | m8_3c.gif (485 bytes) | | D | m8_3d.gif (485 bytes) | |
| 4. What value of n will make the following statement true?  256 = 2*n*   |  |  | | --- | --- | | **F** | 6 | | **G** | 7 | | **H** | 8 | | **J** | 9 | |
| 5. Frank and Joey ordered a large pizza. Frank ate 30% of the pizza and Joey ate 2/5 of the pizza. What percentage of the pizza did they eat in all?   |  |  | | --- | --- | | A | 50% | | B | 60% | | C | 70% | | D | 75% | |
| 6. A drawing of an isosceles trapezoid is shown below.  m8_6.gif (2986 bytes)  m8_6q.gif (4559 bytes)   |  |  | | --- | --- | | F | 47 inches | | G | 60 inches | | H | 73 inches | | J | 103 inches | |

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| 7. The school auditorium was m8_7.gif (254 bytes) full. What percent of the auditorium was full?   |  |  | | --- | --- | | A | 7.8% | | B | 37.5% | | C | 62.5% | | D | 87.5% |   8. ruler.gif (1594 bytes)Use your ruler to help you solve this problem.  A garden is in the shape of a triangle as shown in the figure below. The garden is to be enclosed by a fence.  m8_8.gif (20291 bytes)  Based on the scale, how much fencing is needed to enclose the garden?   |  |  | | --- | --- | | F | 19.1 meters | | G | 20.7 meters | | H | 23.5 meters | | J | 26.6 meters | |
| 9. Look at the diagram below.  m8_9.gif (3473 bytes)  Which two segments intersect to form angle_1.gif (350 bytes)**?**   |  |  | | --- | --- | | A | m8_9a.gif (573 bytes) | | B | m8_9b.gif (565 bytes) | | C | m8_9c.gif (548 bytes) | | D | m8_9d.gif (570 bytes) | |

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| 10. Bob and Bill are fishing together.  Bob says to Bill, "If I catch this fish and 2 more, I will have a total of 3 fish."  Bill says to Bob, "Well, if I catch this fish and 3 more, I will have a total of 6 fish."  Which statement below is correct?   |  |  | | --- | --- | | F | Bob has 1 fish | | G | Bill has 2 fish | | H | Bob has 3 fish | | J | Bill has 6 fish |     11. Wendy is taking a cab ride. The ride costs $1.20 for the first one-tenth of a mile, and $0.90 for each additional one-tenth of a mile. If the trip costs $12.00, how many miles was the cab ride?   |  |  | | --- | --- | | A | 1 mile | | B | 1.2 miles | | C | 1.3 miles | | D | 1.6 miles |   12. A hotel is building a children’s wading pool in the shape of a square with a semicircle on one side. A diagram of the pool is shown below.  m8_12.gif (10487 bytes)  What is the perimeter of the children’s pool?   |  |  | | --- | --- | | F | 22.85 feet | | G | 27.85 feet | | H | 40.70 feet | | J | 45.70 feet | |

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| Directions  Do numbers 13 through 16 about Taylor’s Music Store. |
| 13. Taylor’s Music Store will accept used compact disks (CDs) in exchange for new ones. Look at their exchange table below. |
| m8_13.gif (24038 bytes) |
| If the pattern continues and Maury has 22 CDs to exchange, what is the greatest number of new CDs he can get? |
| |  |  | | --- | --- | | A | 7 | | B | 8 | | C | 9 | | D | 10 | |

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| 14. Taylor’s Music Store is open daily from 9:00 AM until 4:30 PM, 255 days a year. How many hours in all is the store open to the public each year?     |  |  | | --- | --- | | F | 114.75 hours | | G | 191.25 hours | | H | 1147.5 hours | | J | 1912.5 hours |   15. Mr. Taylor recorded the number of sick days taken last year by each employee, as shown in the table below.  m8_15.gif (29070 bytes)  Which of the following represents the *mean*number of days employees were sick?   |  |  | | --- | --- | | A | 3.00 | | B | 3.11 | | C | 3.38 | | D | 3.86 |   16. Once a week, Mr. Taylor selects one name out of a box to win a free CD. If there are 16 girls’ and 20 boys’ names in the box, what is the probability that a girl will be selected?   |  |  | | --- | --- | | F | 4/9 | | G | 5/9 | | H | 4/5 | | J | 5/4 | |

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| 17. The figure below is right triangle ABC.  m8_17.gif (3496 bytes)  Which of these describes the relationship between angle A and angle B?   |  |  | | --- | --- | | A | Angles A and B are complementary angles. | | B | Angles A and B are right angles. | | C | Angles A and B are supplementary angles. | | D | Angles A and B are vertical angles. |     18. In the equation below, which value for x will make this statement true?  3 (x-2) + 1 = 7   |  |  | | --- | --- | | F | 0 | | G | 1 | | H | 4 | | J | 5 |   19. Which inequality is graphed correctly on the number line below?  m8_19.gif (2824 bytes)   |  |  | | --- | --- | | A | m8_19a.gif (684 bytes) | | B | m8_19b.gif (420 bytes) | | C | m8_19c.gif (350 bytes) | | D | m8_19d.gif (367 bytes) |   20. Sue is training for a 1-mile race. Every day she runs 1 mile and records her time. She recorded the following times last week:  m8_20.gif (29519 bytes)  What is Sue’s *median* running time for the week?   |  |  | | --- | --- | | F | 5.10 | | G | 5.89 | | H | 5.94 | | J | 6.65 | |

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| 21. A popular game at a carnival involves a spinner like the one shown below. The areas of sections 1, 3, 5, and 7 are equal. The area of section 9 is twice the area of any one of the other sections.  What is the probability that a player’s spin will be a 7?   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  | m8_21.gif (16751 bytes) | | A | m8_21a.gif (251 bytes) | | B | m8_21b.gif (248 bytes) | | C | m8_21c.gif (288 bytes) | | D | m8_21d.gif (256 bytes) | |  |  |     22. The wingspan of a particular airplane is 41 feet. A scale model of the airplane is 1/10 of the plane’s actual size. Which proportion should be used to find the measure, *w,* of the model’s wingspan?   |  |  |  | | --- | --- | --- | | **F** | m8_22f.gif (375 bytes) | m8_22.gif (10662 bytes) | | **G** | m8_22g.gif (371 bytes) | | **H** | m8_22h.gif (378 bytes) | | **J** | m8_22j.gif (372 bytes) | |
| 23. Which two figures are *similar* but not *congruent*?  m8_23.gif (3367 bytes)   |  |  | | --- | --- | | A | 3 and 5 | | B | 1 and 3 | | C | 2 and 4 | | D | 1 and 5 | |

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| 24. Every week Jake mows the lawn. Each time he mows, he cuts 1 inch off the top of the grass. If *g*equals the length of the grass before he mows, and *m* equals the length of the grass after he mows, which equation below would you use to find the length of the grass after Jake mows the lawn?   |  |  | | --- | --- | | F | m – g = 1 | | G | m = 1 + g | | H | m = g – 1 | | J | g = m – 1 |     25. Angela has a job finding golf balls at a golf course. She is paid $3.00 per hour and $0.25 for each golf ball she finds. If Angela finds an average of 15 golf balls per hour and she earns a total of $20.25 for one day’s work, how many hours has Angela worked?   |  |  | | --- | --- | | A | 3 hours | | B | 5.5 hours | | C | 6 hours | | D | 7 hours |   26. Rachel has an envelope that contains only pennies, nickels, dimes, and quarters. There is more than $0.85 and less than $1.60 in the envelope. There is at least one penny, one nickel, one dime, and one quarter in the envelope.  Using the information above and the following clues, solve the problem:   * There are 3 times as many nickels as dimes. * There are twice as many dimes as quarters. * There is an equal number of pennies and quarters.   How much money is in the envelope?   |  |  | | --- | --- | | F | $1.02 | | G | $1.22 | | H | $1.51 | | J | $1.52 | |

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| 27. One triangle is shown on the grid below. Two coordinates for a second triangle are also shown on the grid.  m8_27.gif (30879 bytes)  Which of the following sets of coordinates will create another triangle that is similar to the triangle that is shown?   |  |  | | --- | --- | | **A** | (-3, -4) | | **B** | (-3, 5) | | **C** | (-3, -3) | | **D** | (-3, 7 | |