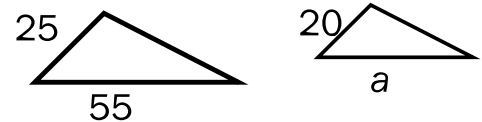


Franklin Math Bowl
7th Grade Test 2009

1. $N = 3 \cdot 10^5 + 8 \cdot 10^3 + 6 \cdot 10^2 + 9 \cdot 10^0$. What is N ?
(a) 38, 609 (b) 386,900 (c) 308,609 (d) 300,869
2. $8^2 - 7^2 + 6^2 - 5^2 = ?$
(a) 26 (b) 4 (c) 52 (d) 102
3. What number divided by 8 has a quotient of 11 with a remainder of 2?
(a) 30 (b) 176 (c) 27 (d) 90
4. 7^{-2} is equal to
(a) $\frac{1}{49}$ (b) $-\frac{1}{49}$ (c) -14 (d) $-\frac{1}{14}$
5. $-6(-5 - 8)^3 - 13^2 =$
(a) -651 (b) -331 (c) -13,351 (d) 13,013
6. A new brand name sweatshirt costs \$44. The sweatshirt is on sale for \$10.99. What percent discount is the store giving? Round to the nearest whole percent.
(a) 25% (b) 75% (c) 40% (d) 33%
7. Which of these is the smallest number?
(a) 5.05×10^{-8} (b) 4.62×10^{-7} (c) 3.27×10^{-6} (d) 2.09×10^{-5}
8. A truck rental firm charges \$27 a day plus 54¢ per mile to rent a truck. How much will Sandy pay to drive a truck 287 miles today?
(a) \$301.58 (b) \$181.98 (c) \$314.54 (d) \$131.49
9. If $f(x) = x^2 + 5x - 11$, what is $f(-3)$?
(a) -17 (b) -35 (c) -5 (d) -53
10. The Census Bureau estimated the population of Wyoming on July 1, 2000, to be 493,963. Wyoming's population eight years later was estimated to be 532,668. Approximately what percent population increase did Wyoming see in those years?
(a) 7.8% (b) 7.2% (c) 7.3% (d) 1.07%

11. A physician was studying how height and weight were related in adults. After collecting data, she found the equation $y = 6.75x - 293.5$ worked as a model to predict the weight of some adults. If x represents the height in inches, and y represents the weight in pounds, what does the 6.75 mean?
- (a) Each additional pound of weight represented 6.75 more inches of height .
 (b) Each additional inch of height represented 6.75 more pounds of weight.
 (c) When the data were arranged in order, there was an average of 6.75 pounds from one person's weight to the next.
 (d) There is not enough information here to tell what the 6.75 means.
12. Use the same equation from the previous problem. If a man from this group were 65.9 inches tall, how much would we expect him to weigh? (Round to the nearest pound.)
 (a) 91 lb (b) 168 lb (c) 53 lb (d) 151 lb.

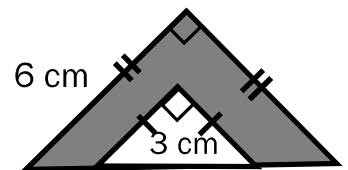
13. The two triangles in the figure at right are similar. Find the value of a .



- (a) 50 (b) 9 (c) 40 (d) 44
14. If $\frac{1}{3}$ of the number represented by n is 72, then what is $3n$?
 (a) 72 (b) 648 (c) 24 (d) 216
15. Find an exact answer for $\sqrt{17} \cdot \sqrt{10}$.
 (a) $\sqrt{1.7}$ (b) $\sqrt{27}$ (c) $\sqrt{170}$ (d) 170

16. What values of x make the inequality $-\frac{3}{4}x + 5 \leq 12$ true?
 (a) $x \leq -\frac{28}{3}$ (b) $x \geq -\frac{28}{3}$ (c) $x \geq -\frac{68}{3}$ (d) $x \leq -\frac{21}{4}$


17. Two isosceles right triangles are in the diagram at right. Find the area of the shaded region.




- (a) 18 cm^2 (b) 13.5 cm^2 (c) 27 cm^2 (d) 4.5 cm^2
18. If $2x + 3 = 15$, then what is the value of $4x - 5$?
 (a) 21 (b) 19 (c) 31 (d) 11

19. The movie theater listed the starting time as 7:40 PM. Actually, that was the starting time for previews and advertisements. There were $4\frac{1}{2}$ minutes of advertisements and $7\frac{1}{2}$ minutes of previews. The movie then ran for 1 hour 14 minutes and had some technical problems that lasted for 6 minutes. The rest of the movie was 1 hour 8 minutes long. What time did the movie end?

- (a) 10:00 (b) 10:26 (c) 10:20 (d) 10:47

20. In the ancient Mayan numeration system, 16 was represented by  . What

number was represented by  ?

- (a) 14 (b) 22 (c) 24 (d) 9

21. If m stands for a whole number, which of these expressions will always be even?

- (a) $m + 3$ (b) $4m$ (c) $2m + 1$ (d) $(2m - 1)^2$

22. A store sells a new gadget called a fidget. The original price of a fidget was \$87.95. The price then is discounted by 15%. After that, another discount of 12.5% is applied. Finally, after the fidgets just aren't selling (perhaps because of the name), the price is reduced by 35%. (After each discount, the price is rounded to the nearest penny before the next price cut.) Sales tax in town is 9.75%. What will it cost to buy two fidgets after all the discounts and tax?

- (a) \$72.39 (b) \$111.42 (c) \$55.86 (d) \$93.33

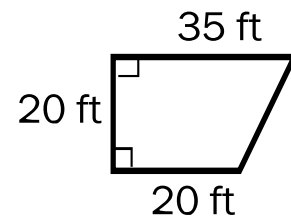
23. Square SQAR is made up of two identical rectangles and two different smaller squares. The areas of the squares are 9 in^2 and 25 in^2 . What is the area of SQAR?

- (a) 49 in^2 (b) 81 in^2 (c) 100 in^2 (d) 64 in^2

24. If $a \diamond b$ means $3(a + b) + b^2$, then what does $7 \diamond 5$ equal?

- (a) 12 (b) 85 (c) 61 (d) 75

The last problem may be used as a tie-breaker. Make sure you show your work on your Scan-Tron in the area provided.



25. A fence is made to enclose the plot shown at right. There are two right angles as in the diagram.. Fencing material costs \$5.75 per foot. How much will it cost to fence in the plot shown?

- (a) \$3162.50 (b) \$546.25 (c) \$862.50 (d) \$575.00