

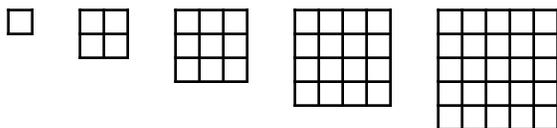
2002 Washington State Math Championship

Unless a particular problem directs otherwise, give an exact answer or one rounded to the nearest thousandth.

Algebra - Grade 6

1. The sum of two numbers is -34 ; their product is 288 . What is their difference?

2. How many different squares are in the next figure?



3. If $P \diamond Q = 2P - 3Q$, what is the value of $1091 \diamond (39 \diamond (36 \diamond 22))$?

4. A three-day truck rental from Haul Monitor costs $\$36.00$ per day plus $\$0.15$ per mile. Renting the same truck from Gotta Haul for 3 days costs $\$57.00$ per day with unlimited mileage. After how many miles is it less expensive to rent from Gotta Haul?

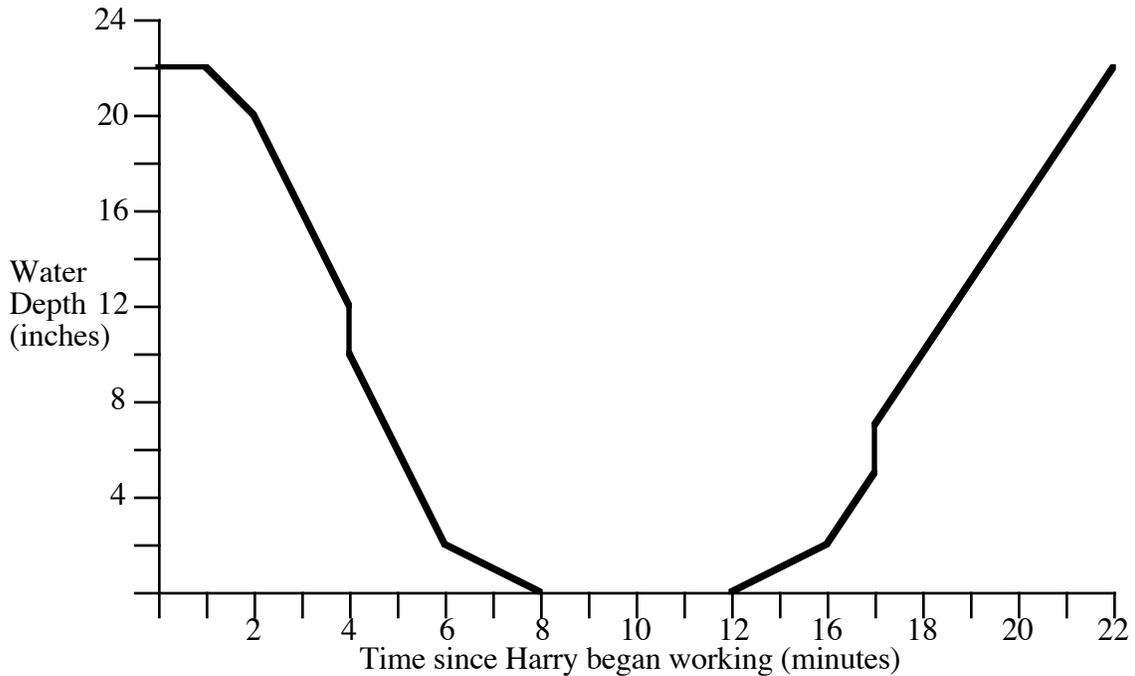
5. If $8 \otimes 6 = 44$, $7 \otimes 6 = 34$, and $7 \otimes 5 = 45$, what is $8 \otimes 5$?

6. When 4 numbers are added, three at a time, their sums are 20, 22, 26, and 31. What is the sum of all 4 numbers?

7. What is the next number in this sequence? Express your answer as a reduced fraction.

$$\frac{1}{3}, \frac{2}{5}, \frac{3}{7}, \frac{5}{9}, \frac{8}{11}, 1, \text{ —}$$

8. Harry is cleaning the laboratory aquarium. In cleaning the aquarium he needs to drain the water, remove and later replace a large rock, scrub the sides of the aquarium, and then fill it again. There are two drains which each drain the aquarium at the rate of 2 inches of depth per minute. There is a tap which fills it at the rate of 3 inches of depth per minute. According to the graph of the water depth in the aquarium and Harry's time on the job, how many minutes is the large rock out of the aquarium?



9. The modern marathon is a race which is 26 miles and 385 yards long. The original marathon was probably measured in stadia. One stadia is equal to 607 feet, and there are 5280 feet in a mile. To the nearest stadia, how long is a marathon?
10. Light travels 186,282 miles per second. How many digits left of the decimal point would be needed to write the distance it travels in one year?