

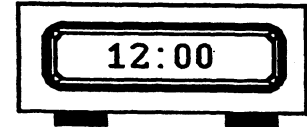
# SUNSHINE MATH - 8

## Pluto, XXII

Name: \_\_\_\_\_

(This shows my own thinking.)

- ★★ 1. On a digital clock showing hours and minutes, how many different readings between noon and 6 P.M. contain at least two 4's?

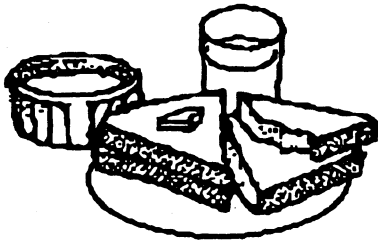


Answer: \_\_\_\_\_ readings

- ★★★ 2. A person who wins a \$1 million lottery usually gets the money spread out in equal increments over 20 years. Also, the government takes 28% off the top, for taxes. If you won such a lottery, how much could you expect to get each year, after taxes for each of the 20 years?

Answer: \_\_\_\_\_

- ★★ 3. A school year is usually 180 days long. If you bought your lunch from the cafeteria every school day during your whole K-12 years, and the average cost was \$1.35 per meal, how much would you spend for school lunches? Assume you never missed a day.



Answer: \$ \_\_\_\_\_

- ★★★★ 4. Light travels at the "speed limit" for the universe -- 186,000 miles per second.
- a. The sun is 93,000,000 miles from earth. How long does it take for light to get from the sun, to earth? Answer: \_\_\_\_\_ minutes
- b. Scientists use the term *light year* to describe distances in the universe. The nearest star to earth is  $4\frac{1}{2}$  light years away. In miles, about how far away is the nearest star?

Answer: \_\_\_\_\_ miles

- ★★★ 5. For coin-collectors, coins are graded on a scale of from 1 to 70 with a score of 70 being perfect. Bob has a coin graded 56. Percentage-wise, how far is it from being perfect?

Answer: \_\_\_\_\_ %

- ★★ 6. One coin collector found a coin dated 232 B.C. What can you say about such a coin?

Answer: \_\_\_\_\_

- ★★★★ 7. A popular formula for a person's arm strength  $S$  is:

$$S = (d + p)\left(\frac{w}{10} + h - 60\right), \text{ where:}$$

$d$  is dips on a parallel bar       $p$  is pull ups  
 $w$  is weight in pounds       $h$  is height in inches

Compute  $S$  for these students. Place them in order from strongest to weakest.

- a. Dorrie: 5 dips, 7 pull ups, 140 pounds, 66 inches tall.
- b. Reynaldo: 6 dips, 4 pull ups, 130 pounds, 70 inches tall.
- c. Rocky: 2 dips, 3 pull ups, 120 pounds, 64 inches tall.
- d. Evelyn: 6 dips, 8 pull ups, 110 pounds, 62 inches tall.

Answer:

From strongest to weakest, they are: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

- ★★★★ 8. To the right is a rectangle. The picture below it shows that 1 vertical line produces 3 rectangles, the original plus two smaller ones. The picture below that shows that 2 vertical lines will produce 6 rectangles. Continue with this pattern by drawing a few more such rectangles.

- a. How many rectangles do you get with 3 vertical lines? \_\_\_\_\_
- b. How many rectangles do you get with 4 vertical lines? \_\_\_\_\_
- c. How many rectangles do you get with 5 vertical lines? \_\_\_\_\_
- d. How many rectangles do you get with 100 vertical lines? \_\_\_\_\_

