

Challenges

1. Sally loaned \$7.00 to Betty. But Sally borrowed \$15.00 from Estella and \$32.00 from Joan. Moreover, Joan owes \$3.00 to Estella and \$7.00 to Betty. One day the girls got together at Betty's house to straighten out their accounts. Which girl left with \$18.00 more than she came with?
2. Bob and Fred together make \$20.00 a week less than double John. John makes \$110.00 a week and Bob makes \$140.00 a week. How much does Fred make?
3. Which is bigger, a or b?
$$a = 2^5 4^4 7^6$$
$$b = 2^6 4^4 7^5$$
4. Which is bigger, a or b?
$$a = 2^7 3^6 7^9$$
$$b = 2^9 3^7 7^8$$
5. Dracula hates daylight more than Wolfman unless Frankenstein hates daylight more than Dracula. In that case Wolfman hates daylight more than Dracula but less than Mummy. Mummy hates daylight more than Dracula but less than Frankenstein. Show a diagram of the monsters ordered according to their hatred of daylight.
6. The Great Lakes differ in both their areas (measured in square miles) and their depths. However these two dimensions do not keep step perfectly. For example, Lake Michigan is exceeded in depth only by Lake Superior, but it is exceeded in area by both Lakes Superior and Huron. Lake Superior is by far the largest and deepest of the Great Lakes, but Lake Ontario, which is the smallest in area, is deeper than both Lakes Huron and Erie. Lake Erie is larger than Lake Ontario but it is not only shallower than Huron; it is also shallower than Ontario. Show the order of the Great Lakes according to depth.
7. Belvedere Street is parallel to St. Anthony Street. Davidson Street is perpendicular to River Street. River Street is parallel to St. Anthony Street. Is Davidson Street parallel or perpendicular to Belvedere?
8. In the town of Pottsville, streets with names that begin with a vowel and end with a consonant run north-south. Those which begin with a consonant and end with a vowel run east-west. Others may run either way. If Carter Street is perpendicular to Agnes Street, is it parallel or perpendicular to Sheridan Street which runs north-south?
9. Boris, Irwin and Steven are engaged in the occupations of librarian, teacher and electrician, although not necessarily in that order. The librarian is Steven's cousin. Irwin lives next door to the electrician. Boris, who knows more facts than the teacher, must drive 45 minutes to visit Irwin's house. What is each man's occupation?
10. On a certain day I ate lunch at Tommy's, took out 2 books from the library (*The Sea Wolf* and *Martin Eden*, both by Jack London), visited the museum, and had a cavity filled. Tommy's is closed on Wednesday, the library is closed on weekends, the museum is only open Monday, Wednesday and Friday, and my dentist has office hours Tuesday, Friday and Saturday. On which day of the week did I do all of these things?

11. Paula, Joanne and Mary own a total of 16 dogs, among which are 3 poodles, twice that many cocker spaniels, and the remainder are German shepherds and collies. Joanne despises poodles and collies, but owns 4 cocker Spaniels and 2 German shepherds, giving her a total of 6 dogs. Paula owns 1 poodle and only 2 other dogs, both German shepherds. Mary owns 3 collies and several other dogs. What other dogs (and how many of each) does Mary own?
12. The fire department wants to send booklets on fire hazards to all teachers and homeowners in town. How many booklets does it need, if there are 50,000 homeowners, 4,000 teachers and 3,000 teachers who own their homes?
13. The government wants to contact all druggists, all gun store owners, and all parents in a town. How many people must be contacted?
- | | |
|---------------------------------------|-------|
| Druggists..... | 10 |
| Gun store owners..... | 5 |
| Parents..... | 3,000 |
| Druggists who own gun stores..... | 0 |
| Druggists who are parents..... | 7 |
| Gun store owners who are parents..... | 3 |
14. In a foreign language *lev klula buj* means "buy green peppers." However, words in this tongue are not always spoken in the same order as in English. For example, *buj* does not mean "peppers." Also, *ajm buj gyst* means "big green cars" and *lkuka lev ajm* means "quickly buy cars". How would you say "big peppers in this tongue?
15. In a different language *luk eir lail* means "heavy little package," *bo lail* means "heavy man" and *luk jo* means "pretty package". How would you say "little man" in this language?
16. Decide which three numbers should come next in this series and write the pattern description:
2 7 4 9 6 11 8 13 _ _ _
17. Write the next three entries in this series and the pattern description:
1 z 3 w 9 t 27 q 81 _ _ _
18. Miss Prism, being duly sworn, was asked her age but remained stubbornly silent. Come, come, my good woman," snapped the judge. "You must answer the court's questions." Counsel intervened smoothly. "I understand, M'Lord that she is certainly over 40 and under 50, if it pleases you, M'Lord." "It does not please me, Sir Ambrose. I am thinking of finding her in contempt." This threat overcame some of Miss Prism's reticence, and she hastily deposed as follows: "When I stop speaking, I shall have made exactly two true statements. My age is divisible by 2. It is a perfect square. It is not 42. It is a prime number. It is divisible by 3". At this point, she stopped speaking. "Perjury, I fancy," snapped the judge. "With respect, M'Lord, I fancy she has answered the question, if your Lordship will attend carefully to the various possibilities." How old is the lady?
19. You are responsible for mailing 80,000 letters. You must mail 25% of the total letters over the next five days. If you plan to mail 1/5 of this amount each day, what is the total amount that you plan to mail each day?
- A) 4,000 B) 2,000 C) 20,000 D) 5,000