

# Calendar Math

*Arthur Jorgensen*

Here are the math exercises for the month of January 2001. These problems vary significantly in difficulty. However, with minor modification most can be adapted to various grade levels. Many problems should lead to interesting discussions, which could in turn lead into many other subject areas.

1. Mary can buy three pencils or two erasers for the same amount of money. How many erasers can Mary buy if she just has enough money for 24 pencils?
2. Which pie gives you more for your money, a 30-cm diameter round pie for \$16 or a 20-cm square pie for \$7.50?
3. Is it cheaper to take two friends to a movie once or to take one friend twice? Support your answer if the cost of a movie is \$4.
4. Sean buys a female cat for \$14.50. When his cat has kittens, he plans to sell the kittens for \$3.25 each. Ignoring the cost of food, how many kittens will he have to sell before he makes a profit?
5. Each of the letters has a unique numerical value. What is it?  

$$\begin{array}{r} ABCD \\ \times 9 \\ \hline DCBA \end{array}$$
6. Mr. Wilson is planning to paint his deck. The deck is 4 m wide and 10 m long. If a litre of paint covers  $9 \text{ m}^2$ , what is the smallest number of litres of paint that he will have to buy if he plans to give the deck two coats of paint?
7. What will be the least cost of paint for Mr. Wilson if paint can be bought at the following prices: a 4-L pail costs \$23.50, and a 1-L can sells for \$7.35?
8. How long will it take Mr. Wilson to paint the deck if he can paint one square metre every 3.5 minutes?
9. If Mr. Wilson begins to paint his deck at 9 a.m., at what time will he be finished if he has to allow three hours' drying time between coats of paint?
10. If Mr. Wilson hires his friend Tom to paint the deck, how much will Mr. Wilson pay if Tom charges \$0.75 per square metre to paint the deck?
11. If Mr. Wilson decides to have Tom paint the deck, what will be the total cost of the paint job, including the cost of the paint?
12. The Olsons have five sons and each son has two sisters. How many children do the Olsons have?
13. The Lauterbachs are planning to plant a row of trees along their driveway. If the driveway is 150 m long, how many trees will they have to plant if the trees are to be 10 m apart?
14. Susan wants to enclose a pasture area for her horse, Silver. She has only 157 m of rope. What is the largest area that she can enclose?
15. Cyprian thinks he should walk his dog, Buster. On the first day he walks Buster for 10 minutes. On the second day he walks for 20 minutes. On the third day he walks for 30 minutes. If he maintains the pattern for one week, how long will he walk on the seventh day?
16. What is the total time that Cyprian will have walked in the week?
17. If Cyprian walks at the rate of 3 km/h, how far will he have walked in the week?
18. If Cyprian burns 60 calories per hour while walking, how many calories will he burn during the week while walking?
19. Victor eats half his candy on Monday. On Tuesday he eats half of what is left. On Wednesday he again eats half of what is left. How much of his candy is left on Thursday?
20. If Victor continues this pattern of eating his candy, when will his candy be all gone? [*This is a good discussion question.*]

21. Mrs. Smith has her dog in a kennel that is  $6\text{ m} \times 4\text{ m}$ . She feels that it is too small. She wants a kennel that is four times as large. What will be the dimensions of the new kennel?
22. A particular insect can double its weight every hour. It reaches its maximum weight after six hours. After how many hours does it reach half its maximum weight?
23. How would you arrange the following digits to get the largest number? The smallest number? 3705. What is the difference between the largest and smallest numbers?
24. According to statistics, nine babies are born and three people die every two seconds. If this is true, how many babies are born in any one day?
25. Using the above data, how many people die in any one day?
26. According to these statistics, by how many people is the world's population increasing in any one day? [*These questions should provide the opportunity for some excellent discussion.*]
27. Alberta's population is approximately 3,000,000. If Alberta's population increases at the approximate rate of 50,000 per year, in what year will the population reach 4,000,000?
28. Of the 50,000 increase in population, 20 percent are school-aged children. How many more classrooms will be required each year, if one classroom is expected to house 25 students?
29. If it costs approximately \$6,000 to educate each child per year, how much will the annual cost of educating these additional students be?
30. Jane is three years older than her brother Adolph. In five years, their combined ages will be twenty-one years. How old is Jane today?
31. If the price of a candy bar has doubled every 10 years and it costs \$1 today (2001), to the nearest cent, what did it cost in 1961?

## Answers

1. 16 erasers
2. The 20-cm square pie
3. It is cheaper to take two friends to the movie once because one only has to buy three tickets, versus four tickets if one takes one friend twice. If tickets cost \$4 each, the difference means saving \$4.
4. 5 kittens
5.  $A = 1, B = 0, C = 8, D = 9$ .
6. 9 L
7. \$54.35
8. 280 minutes
9. 4:40 p.m.
10. \$60
11. \$114.35
12. 7 children
13. 16 trees
14. A circle will provide the largest area:  $1,962.5\text{ m}^2$
15. 70 minutes
16. 280 minutes
17. 14 km
18. 280 calories
19.  $1/8$  of his candy
20. Mathematically, the candy will never be all gone.
21.  $12\text{ m} \times 8\text{ m}$ , or any other measurement that produces  $96\text{ m}^2$
22. 5 hours
23. Largest: 7530, smallest: 3057, difference: 4473
24. 388,800 babies are born in 24 hours.
25. 129,600 people die in 24 hours.
26. 259,200 people
27. 20 years
28. 400 classrooms
29. \$60,000,000
30. Jane is seven years old.
31. 6 cents

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Discovery and learning from the very beginning of his education, the child should experience the joy of discovery.

*Alfred North Whitehead*

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