

Whole Class Discussion

A Real-Life Application of Algebra

The Cherubs 'R Us Child Care Centre caters for 8 babies (aged from 0 months to 18 months), and 72 children (older than 18 months).

The 72 children can be cared for by 3 child care assistants. However the 8 babies need to be cared for by a registered nurse, whose wages are much higher. Hence, the cost of caring for a baby is higher than that of a child. Because of this, the management committee has decided that they will charge \$7 more per day for a baby than for a child.

For each baby or child, the parents must pay for 5 days of child care per week, for 50 weeks per year (the other two weeks are free).

The management committee has decided that the total income for the next year from the parents must total \$580 000.

a Find the daily cost of care for a child.

b Find the daily cost of care for a baby.

Solution

The number of days per year that parents must pay for child care is _____.

Let x equal the daily cost of care for a child. Find an algebraic expression for:

The daily cost of care for a baby: _____

The cost of caring for one child for one year: _____

The cost of caring for one baby for one year: _____

The cost of caring for 72 children for one year: _____

The cost of caring for 8 babies for one year: _____

The total cost of caring for all children and babies: _____

This expression must equal 580 000. Hence we can write _____

This is called an **equation**. Finding the value of x that makes this equation true is called **solving the equation**.

Solve the equation for x .

Use this solution to answer the questions.

Check that the solution is correct.