Question

A new cruise ship line has just launched 3 new ships: the Pacific Paradise, the Caribbean Paradise, and the Mediterranean Paradise. The Caribbean Paradise has 39 more deluxe staterooms than the Pacific Paradise. The Mediterranean Paradise has 40 fewer deluxe staterooms than three times the number of deluxe staterooms on the Pacific Paradise. Find the number of deluxe staterooms for each of the ships if the total number of deluxe staterooms for the three ships is 659.

Solution

Let x be the number of deluxe staterooms on the Pacific Paradise. Then $x + 39$ is the number of deluxe staterooms on the Caribbean Paradise and $3x - 40$ is the number of deluxe staterooms on the Mediterranean Paradise.

So,

$$x + x + 39 + 3x - 40 = 659$$

$$5x = 660,$$

$$x = 132.$$

That is, the Pacific Paradise has 132 deluxe staterooms,

hence the Caribbean Paradise has $x + 39 = 132 + 39 = 171$ deluxe staterooms,

the Mediterranean Paradise has $3x - 40 = 3 \cdot 132 - 40 = 356$ deluxe staterooms.

Answer: the Pacific Paradise has 132 deluxe staterooms, the Caribbean Paradise has 171 deluxe staterooms and the Mediterranean Paradise has 356 deluxe staterooms.