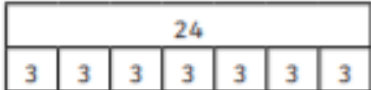




Challenges



1) Pippa has used different models to represent some facts from the three times table. Paulo says she has made some mistakes. Do you agree with Paulo? Explain your reasons.

<p>a)</p> 	<p>b)</p> 
<p>Explanation:</p>	<p>Explanation:</p>
<p>c)</p> $2 \times 5 \times 3 = 30$	<p>d)</p> $\begin{array}{r} 4 \times 3 \\ + \\ 2 \times 2 \end{array}$
<p>Explanation:</p>	<p>Explanation:</p>
<p>e)</p> $3 + 3 + 3 + 3 + 3 + 3 = 18$	<p>f)</p> 
<p>Explanation:</p>	<p>Explanation:</p>

2) Paulo says, "Half of the numbers in the three times table are odd numbers." Explain why this is correct.

Priya is planning how to arrange the tables in her new cafe.



seats 3 people



seats 5 people

- 1) Priya has a total of 12 tables but can't remember how many are rectangles and how many are circles. (She has at least one of each type of table.) How many people could she fit into the café? Find all the possibilities.

- 2) Priya thinks she will need enough seats for 38 people. How many of each table might she use? Find all the possibilities.

Explain to a friend how you worked systematically.

Answers

- 1) a) Pippa has made a mistake. This model shows $7 \times 3 = 21$, but the answer 24 has been given.
 b) This model correctly shows $3 \times 9 = 27$ or $27 \div 3 = 9$.
 c) This model correctly shows $3 \times 10 = 30$.
 d) Pippa has made a mistake. The second calculation doesn't show groups of 3.
 e) This model correctly shows $6 \times 3 = 18$.
 f) Pippa has made a mistake. The hoops do not contain equal shares of the 12 cubes.
- 2) The facts in the three times table increase by 3 each time. Three is an odd number. If you add two odd numbers, you will get an even number. When you then add an odd number to that, you will get an odd number. As you are always adding an odd number, the pattern "odd, even, odd, even..." will continue.



1)

Rectangular tables	Circular tables	Chairs needed
1	11	$(1 \times 3) + (11 \times 5) = 3 + 55 = 58$
2	10	$(2 \times 3) + (10 \times 5) = 6 + 50 = 56$
3	9	$(3 \times 3) + (9 \times 5) = 9 + 45 = 54$
4	8	$(4 \times 3) + (8 \times 5) = 12 + 40 = 52$
5	7	$(5 \times 3) + (7 \times 5) = 15 + 35 = 50$
6	6	$(6 \times 3) + (6 \times 5) = 18 + 30 = 48$
7	5	$(7 \times 3) + (5 \times 5) = 21 + 25 = 46$
8	4	$(8 \times 3) + (4 \times 5) = 24 + 20 = 44$
9	3	$(9 \times 3) + (3 \times 5) = 27 + 15 = 42$
10	2	$(10 \times 3) + (2 \times 5) = 30 + 10 = 40$
11	1	$(11 \times 3) + (1 \times 5) = 33 + 5 = 38$



2)

Rectangular tables	Circular tables
1	7
6	4
11	1