



Problem of the Week Problem A and Solution Ice Cream Party!

Problem

The Grade 3 and Grade 4 classes of Wapella Public School are having an ice cream party. Each student gets one scoop of ice cream. The teachers conducted a survey to find out what ice cream flavours the students wanted.

- (a) Fill in the missing vote tallies and frequencies in the following tables.

Grade 3: 78 students polled

Flavour	Vote Tally	Frequency
chocolate		
vanilla		
strawberry		
butterscotch		
mint chip		
bubble gum		

Grade 4: 82 students polled

Flavour	Vote Tally	Frequency
chocolate		
vanilla		
strawberry		
butterscotch		
mint chip		
bubble gum		

- (b) How many scoops of strawberry ice cream are needed for the party?
- (c) A tub of ice cream contains enough for 6 scoops. How many tubs of each flavour of ice cream will the teachers need to buy?
- (d) If each tub of ice cream costs \$4, how much will the ice cream for this party cost?

**Solution**

- (a) The completed tables are below.

Grade 3: 78 students polled

Grade 4: 82 students polled

Flavour	Vote Tally	Frequency	Flavour	Vote Tally	Frequency
chocolate		17	chocolate		21
vanilla		23	vanilla		20
strawberry		13	strawberry		6
butterscotch		4	butterscotch		19
mint chip		9	mint chip		3
bubble gum		12	bubble gum		13

The known frequencies for the Grade 3 class total $17 + 23 + 13 + 9 + 12 = 74$, which leaves $78 - 74 = 4$ students who selected butterscotch.

The known frequencies for the Grade 4 class total $21 + 20 + 19 + 3 + 13 = 76$, which leaves $82 - 76 = 6$ students who selected strawberry.

- (b) Since 13 students in Grade 3 selected strawberry and 6 students in Grade 4 selected strawberry, a total of $13 + 6 = 19$ scoops of strawberry ice cream are needed for the party.
- (c) To determine the number of tubs of ice cream to buy, we first need to find the total number of scoops selected for each flavour. We could then use skip counting to determine the number of tubs to buy. We would need to skip to at least the amount of scoops wanted in total and possibly beyond the actual number of scoops needed. For example, we need a total of $17 + 21 = 38$ scoops of chocolate ice cream. Skip counting by 6, we have 6, 12, 18, 24, 36, 42, and we get beyond 38 on the seventh value. So we need 7 tubs of chocolate ice cream. We can go through a similar process for the other flavours.

Alternatively, we could divide the total number of scoops for each flavour by 6, and round up if necessary. We must round up since we need to ensure we have enough scoops to serve everyone that wants a particular flavour.

	chocolate	vanilla	strawberry	butterscotch	mint chip	bubble gum
scoops selected	$17 + 21 = 38$	$23 + 20 = 43$	$13 + 6 = 19$	$4 + 19 = 23$	$9 + 3 = 12$	$12 + 13 = 25$
scoops divided by 6	$38 \div 6 = 6$ remainder 2	$43 \div 6 = 7$ remainder 1	$19 \div 6 = 3$ remainder 1	$23 \div 6 = 3$ remainder 5	$12 \div 6 = 2$ remainder 0	$25 \div 6 = 4$ remainder 1

Rounding up where necessary, this means we need 7 tubs of chocolate, 8 tubs of vanilla, 4 tubs of strawberry, 4 tubs of butterscotch, 2 tubs of mint chip, and 5 tubs of bubble gum.

- (d) Since we need a total of $7 + 8 + 4 + 4 + 2 + 5 = 30$ tubs of ice cream, and each tub costs \$4, the ice cream at this party will cost a total of $30 \times 4 = \$120$.