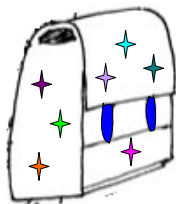


# Grade 7

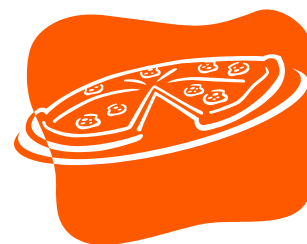
## EXTRA CHALLENGES - SET IV

This resource may be copied in its entirety, but is **not to be used for commercial purposes** without permission from the Centre for Education in Mathematics and Computing, University of Waterloo.



1. Marcy buys a new backpack that costs \$21.08 including tax. She gives the cashier \$22.00. Marcy receives exactly eight coins in change. The possible coins she can receive are quarters (\$0.25), dimes (\$0.10), nickels (\$0.05), and pennies (\$0.01). What combinations of eight coins are possible?

2. Three friends buy a medium pizza that costs \$12.00. Adam pays for one third of the pizza. Lynette pays one and a half times more than Adam and Jenn pays one third of the amount Lynette has paid. Each friend receives the amount of pizza proportional to the amount they paid.



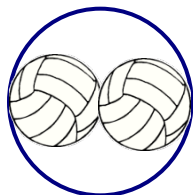
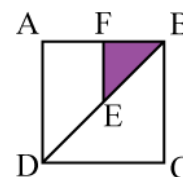
- How much did each friend pay?
- Draw and label a pie graph to represent each friend's share of the pizza.
- Explain why the entire pizza has been distributed.

### Did You Know?

The largest pizza was 37.4 metres in diameter made in Norwood, South Africa on December 8, 1990.

3. A rectangular window is  $2\frac{1}{2}$  times as long as it is wide. If it were one metre shorter and two metres wider, it would be a square window. What are the dimensions of the window?

4. BD is a diagonal of the square ABCD. The points E and F are midpoints of BD and AB, respectively. What is the ratio of the area of the triangle FEB to the area of the square ABCD?



5. In the picture, two volleyballs fit into a hula-hoop. The surface area of each volleyball is approximately  $1386 \text{ cm}^2$ . Determine the diameter of the hula-hoop? The surface area of a sphere is  $SA = 4\pi r^2$ .

Don't forget to try these past contests! Go to [www.wiredmath.ca](http://www.wiredmath.ca) for the link.



**TRY THIS!**

**Past Gauss Contests**

[http://www.cemc.uwaterloo.ca/contests/past\\_contests.html#gauss](http://www.cemc.uwaterloo.ca/contests/past_contests.html#gauss)