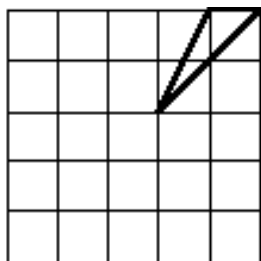


UBC Grade 5-8 Problems 1996

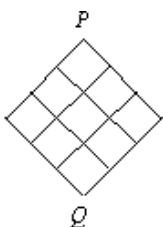
1. After recording the marks of the class of 18 students, the average mark for the class was calculated to be 86. A week later, it was noticed that one student's mark had been recorded mistakenly as an 86 rather than the correct mark of 68. After the mistake was corrected, what was the average mark for the class?
2. The water content of 8 cm of snow is equivalent to 7.5 mm of rain. Annually, Vancouver receives 50 cm of snow. How much rain is this equivalent to?
3. Each year, 16 teams are paired off in eight series in the first round of the Stanley Cup playoffs in hockey. A team is the winner of a series if it is the first team to win four games. Only the winning teams of series keep on advancing. This continues until there is a Stanley Cup Champion. What is the maximum number of Stanley Cup playoff games possible each year?
4. When filled, a ferry can carry (1) 500 cars and 400 bicycles or (2) 600 cars or (3) 400 bicycles and 3000 passengers. If the ferry only carries passengers, what is the maximum number of passengers that it can carry?
5. After playing 30 games in goal, Curshy Hurshy has a Goals Against Average (GAA) of 3.00. $[GAA = (\text{the number of goals allowed})/(\text{the number of games played})]$ For the rest of the season, Curshy Hurshy has five shutouts (games in which no goals are allowed) and finishes with a GAA of 2.00 for the whole season. What is the minimum number of games in goal played by Curshy Hurshy during the season?

6. In the given diagram, what percentage of the square is outside of the figure in bold?



7. From Granville and Georgia, a West Vancouver bus leaves every 12 minutes and a Hastings bus leaves every 20 minutes. Each day, the first buses on both routes leave Granville and Georgia at 7:00 a.m. and no bus leaves after 11:30 p.m.. How many times during the day do both of these buses leave Granville and Georgia at the same time?
8. A lacrosse ball bounces straight up and down. Each time it bounces up half the height it has just fallen. Suppose the ball starts falling from a height of 16 m from the floor. When the top of its bounce is 1 m from the floor, find the total distance travelled by the ball.
9. A cube has a side of length 4 cm. The cube is painted red all over and then cut into 64 cubes with sides of length 1 cm. How many of these cubes have exactly one face painted red?
10. Lee bought 38 CDs, each costing the same price, with the bill totalling \$*29.2*, with the first and last digits smudged beyond recognition. Lee remembered that each CD cost over \$15. What are the possible prices for each CD?
11. Students who pass Math 12 like mathematics. Which of the following statements must be true?
- (a) All students who like mathematics pass Math 12.
 - (b) All students who dislike mathematics fail Math 12.
 - (c) Some students who dislike mathematics pass Math 12.
 - (d) Some students who dislike mathematics fail Math 12.
 - (e) Some students who like mathematics pass Math 12.

12. If only downward motion along lines is allowed, what is the total number of possible paths from point P to point Q in the diagram?



13. Barbara cycles to school alongside a railroad track at 6 km/h. Every day she arrives at a crossing at the same time as the daily train. One day she is 50 minutes later than usual in arriving at the crossing. Consequently, the train, which is always on time, passes Barbara 6 km before the crossing. What is the speed of the train?
14. It takes Alex three hours to row down a river from point A to point B , and four hours to row up the river from B to A . How long would it take for a piece of wood to drift from A to B ?
15. Five dice (six-sided, numbered 1-6) are rolled and their top faces are examined. Find the chance (probability) that the sum of the faces is even.