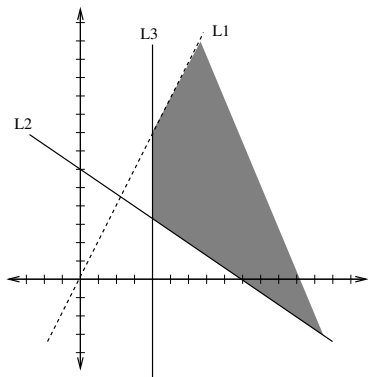
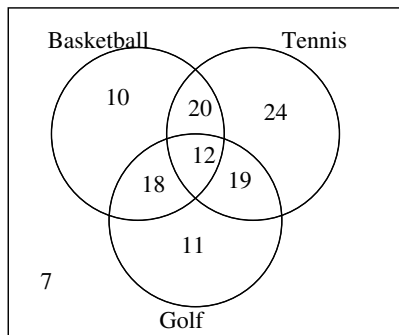


1. Feasible region is the shaded part.



- (a) Value: 3
Location: C
- (b) Value: 14
Location: \overline{GH}

2. venn diagram



- 3. (a) $10 + 32 + 12 + 24 = 78$
- (b) $12 + 10 + 32 = 54$
- (c) $10 + 14 + 7 + 10 + 12 = 53$

4. prizes are selected to take home, so we don't worry about order.

- (a) $S = \{AB, AC, AD, BC, BD, CD\}$
- (b) $\{ AB, BC, BD\}$

- 5. (a) $\{b, c, f, g, h\}$
- (b) $\{f\}$
- (c) False
- (d) True

6. 2^7

7. any two sets with something in common. $\{a, b, c\}$ and $\{a, e, f\}$

8. use a venn diagram. Answer= 21

9. $C(15, 5)$

10. $C(15, 3)C(18, 7) + C(10, 5)C(23, 5) - C(15, 3)C(10, 5)C(8, 2)$

11. $7 * 5 * 10 * 10 * 10 * 10$

12. $3! * (6! * 5! * 4!)$

13. $P(10, 2) * C(15, 4) * C(20, 3)$

14. Total - don't want.

(a) $C(30, 11) - [C(10, 0)C(20, 11) + C(10, 1)C(20, 10)]$

(b) $C(12, 9)C(18, 2) + C(10, 9)C(20, 2)$

15. $C(17, 8) * C(9, 2) * C(7, 6) * C(1, 1)$

or $\frac{17!}{8!2!6!}$