Solution Sheet 7, June 9, 2012

Answers

1. \(2 \times (6)^2\)

2. 249 - count the number of 5’s

3. (a) Take the point on the axis of symmetry of the parabola. This is a maximum or a minimum.
   (b) \(\frac{c^4}{2}\)

4. (a) take \(x = y\) and \(z = x + 1\), this is true for all integers \(x\).

5. (a) Area \(ABC = \text{Area } ADC + \text{Area } BDC\)
   (b) By cos rule, \(\cos(72^\circ) = x/8\), where \(x = -2 \pm 2\sqrt{3}\). Since \(\cos(72^\circ) > 0\), \(\cos(72^\circ) = \frac{-1 + \sqrt{5}}{4}\).
   (c) As above, \(\cos(36^\circ) = \frac{-1 + \sqrt{5}}{4}\)