

Never Stand Still

Faculty of Science

School of Mathematics and Statistics

Solution Sheet 7, June 9, 2012

Answers

- 1. $2*(6)^2$
- 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 = Area ADC+ Area BDC
 - (b) By cos rule, $\cos(72^{\circ}) = x/8$, where $x = -2 \pm 2\sqrt{5}$. Since $\cos(72^{\circ}) > 0$, $\cos(72^{\circ}) = \frac{-1+\sqrt{5}}{4}$.
 - (c) As above, $\cos(36^{\circ}) = \frac{-1+\sqrt{5}}{4}$