

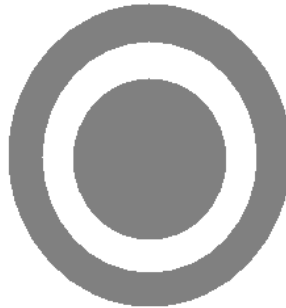
## Homework Section 3.2 - Due 28th Sep

Show your working. Sketching diagrams may simplify problems.

1. #32 on page 114.
2. The distance between the earth and the sun is approximately 150 million kilometres. Assuming that the orbit of the earth is circular and 1 year is 365.25 days, calculate the distance that earth traces in
  - (a) 1 week.
  - (b) 30 days.

Give your answers to the nearest thousandth kilometre.

3. Charlie's windscreen wiper is broken on his car and can only rotate 35 degrees. Given that his wiper is 45 cm long, calculate the area that the wiper sweeps through. Give your answer in  $\text{cm}^2$  to 2 decimal places.
4. Suppose that three concentric circles (circles with the same centre) have radii 3cm, 4cm and 5cm. If the outer ring and the inner circle is shaded, calculate the *exact* total area of the shaded regions in  $\text{cm}^2$ . Somewhat poor sketch:



5. #64 on page 117. Give your answer in miles to the nearest mile.
  6. By observing stellar parallax, an astronomer knows that star  $A$  and star  $B$  are both 40 light years away from Earth,  $E$ . If the angle  $AEB = 1.5^\circ$ , approximate the distance between  $A$  and  $B$ . Give your answer in light years to 3 decimal places.
- \*7 # 8, 34, 42, 52, 63 (this problem involves a historical calculation of the earth's circumference more than 2000 years ago!).

\*Optional problems, not to be handed in.