DEPARTMENT OF PHYSICS
AND ASTRONOMY
Faculty of Science
and Engineering

MACQUARIE
University

FORMULA SHEET

$$M_* = M_\odot \left(\frac{L_*}{L_\odot}\right)^{\frac{1}{4}} \qquad d_{\text{inner}} = 0.94\sqrt{\frac{L_*}{L_\odot}}\,\text{AU} \qquad R_* = d_{\text{orbit}}\frac{\pi t_{\text{trans}}}{T}$$

$$d_{\text{orbit}} = \left(\frac{GT^2 M_*}{4\pi^2}\right)^{\frac{1}{3}} \qquad d_{\text{outer}} = 1.72\sqrt{\frac{L_*}{L_\odot}}\,\text{AU} \qquad R_p = R_*\sqrt{dip}$$

Luminosity of the Sun $L_\odot$	3.85×10^{26} W
Mass of the Sun $M_\odot$	1.99×10^{30} kg
Luminosity of WASP-2 star L_*	2.20×10^{26} W
Orbital Period of WASP-2b T	185,930 sec
Gravitational Constant G	6.67×10^{-11} Nm^2/kg^2
Astronomical Unit AU	$1.50\text{x}10^{11}$ m
Transit Time of WASP-2b t_{trans}	6,480 sec
Fractional Brightness Dip of WASP-2b *dip*	2% (0.02)
Radius of Jupiter R_j	$6.99\text{x}10^7$ m

Mass of WASP-2 star M_*	_____
Orbital Radius of WASP-2b d_{orbit}	_____
Inner Habitable Zone Boundary d_{inner}	_____
Outer Habitable Zone Boundary d_{outer}	_____
Stellar Radius of WASP-2 R_*	_____
Radius of exoplanet WASP-2b R_p	_____