

10(a)(i)	total power of radiation emitted (by the star)
10(a)(ii)	standard candle has known luminosity
	measure the radiant flux intensity
	use $F = L / (4\pi d^2)$ to calculate d
10(b)(i)	$\nu = 2\pi R / T$
	$\nu = 3.00 \times 10^8 \times (656.2877 - 656.2831) / 656.2831$
	$R = [3.00 \times 10^8 \times (656.2877 - 656.2831) / 656.2831] \times (2.07 \times 10^6) / 2\pi = 6.93 \times 10^8 \text{m}$
10(b)(ii)	Z is moving towards Earth
	so observed wavelength is less than the emitted wavelength
10(b)(iii)	$L = 4\pi\sigma r^2 T^4$
	$3.8 \times 10^{26} = 4\pi \times 5.67 \times 10^{-8} \times (6.93 \times 10^8)^2 \times T^4$
	$T = 5800\text{K}$