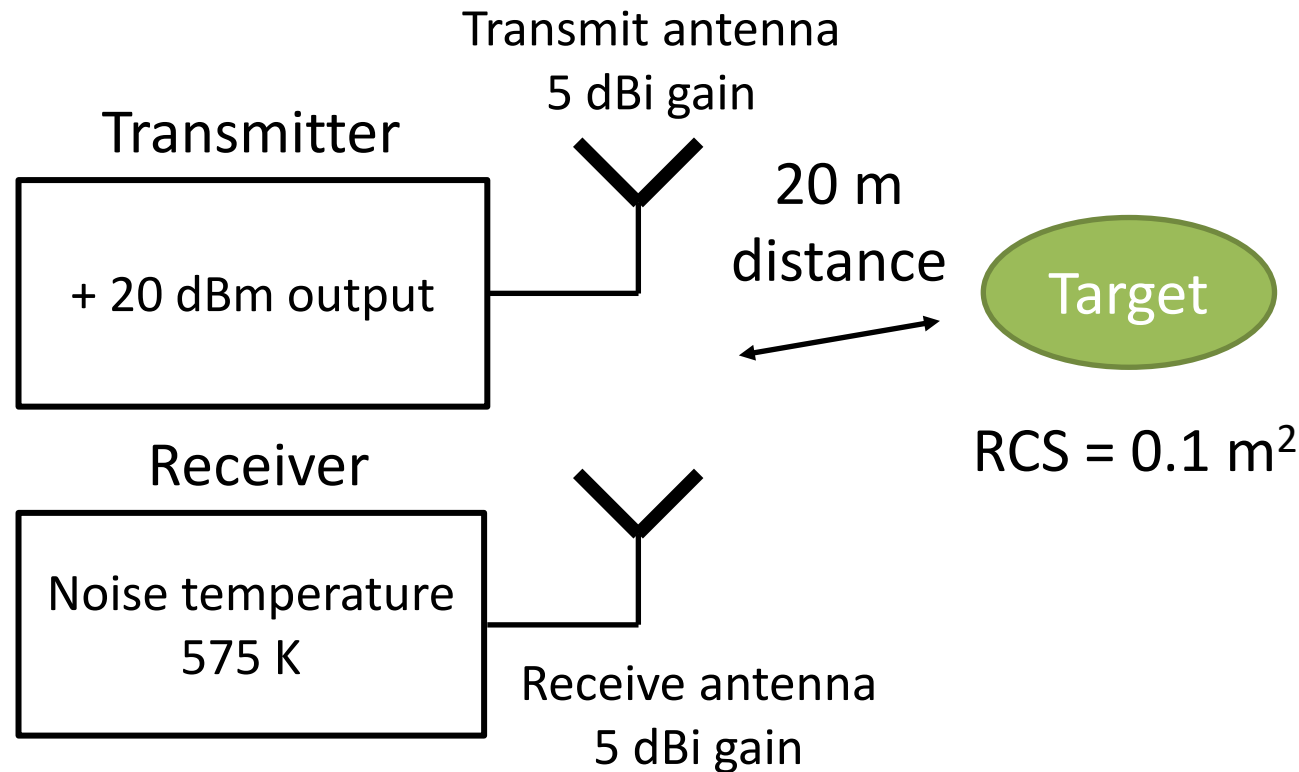# Second in-class exercise of Topic 4

- What is the receiver signal-to-noise ratio in dB of the following monostatic radar link? Bandwidth of the radar = 10 MHz, carrier frequency of radio signal = 5.8 GHz. There is a filter at the receiver that extracts the signal bandwidth only.

Transmit antenna
5 dBi gain

Transmitter

+ 20 dBm output

20 m distance

Target

RCS = 0.1 m²

Receiver

Noise temperature
575 K

Receive antenna
5 dBi gain

Other conditions

No antenna mismatch losses
No RF cable losses
Antenna noise temperature
150 K
Bolzmann constant
1.38×10^{-23} m² kg s⁻² K⁻¹