

$$1) \quad \sigma_c = 315 \text{ MPa} (1.17)^{.54} = 100.25 \text{ MPa}$$

~~$$\sigma_a = 205 \text{ MPa} (1.12)^{.2} = 134.15 \text{ MPa}$$~~

$$2) \quad \bar{\gamma}_a = \frac{205 (1.12)^{.2}}{1.2} = 111.79 \text{ MPa}$$

$$\sigma_a = 205 (1.12)^{.2} = 134.15 \text{ MPa}$$

instantaneous is greater than average

$$3) \quad d = 9.23 \text{ mm} - 8.95 \text{ mm} = .28 \text{ mm}$$

- 4) advantages: - better geometry due to lack of heating
- stronger microstructure from cold-working

disadvantages: - more force required, therefore, more expensive

~~more expensive~~

- material is more brittle & there is a higher chance of yielding.

5) extrusion is good for making longer parts.