

1a) μ = mean mineral density

$$H_0: \mu = 1.4$$

$$H_a: \mu \neq 1.4$$

b) H_0 : no improvement using new form

H_a : improvement using new form.

(2) Given: $n=53$, $\mu=20$, $\bar{X}=22.1$, $s=6$, $\alpha=5\%$.

(a) (1) $H_0: \mu = 20$ $H_a: \mu > 20$.

(2) $z_{\text{calc}} = \frac{\bar{X} - \mu}{s/\sqrt{n}} = 2.548$

(3) $p\text{-value} = P(Z > 2.548) = 0.005$

(4) $\because p\text{-value} < \alpha$ $\therefore$ reject H_0 and conclude that pop. mean is greater than 20.

(b) [Student's answer].
creativity.