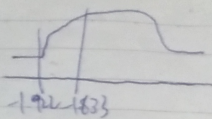


$$1. H_0: m > 198 \quad \frac{190-198}{\frac{13.16}{\sqrt{10}}} = -1.922$$

$$H_1: m < 198$$

$$\alpha = 0.05$$

$$t_{0.05}(9) = 1.833$$



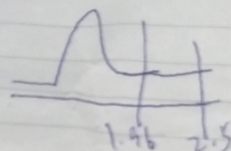
$$2. H_0: m = 420$$

$$H_1: m \neq 420$$

$$\alpha = 0.05 \quad \frac{\alpha}{2} = 0.025$$

$$Z_{0.025} = 1.96$$

$$\frac{423-420}{\frac{13}{\sqrt{100}}} = 2.5$$

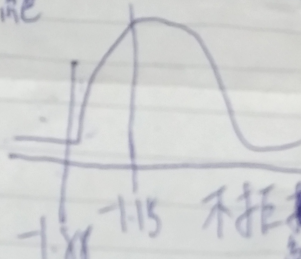


$$3. H_0: m \geq 70$$

$$H_1: m < 70$$

$$Z_{0.03} = -1.88$$

$$\frac{68.5-70}{\frac{6}{\sqrt{36}}} = -1.15$$

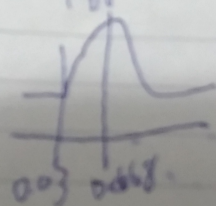


不拒絕 $H_0 \Rightarrow$ 成績沒有不如去年

$$4. P(Z < -1.5)$$

$$0.0668 > 0.03$$

不拒絕 H_0

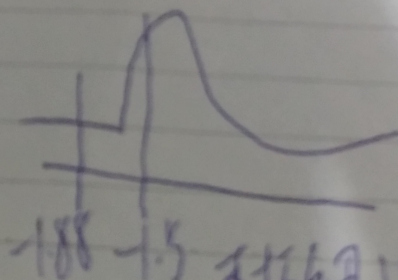


$$5. H_0: m \leq 1.5$$

$$H_1: m > 1.5$$

$$t_{0.05}(4) = 2.132$$

$$\frac{1.52-1.5}{\frac{0.019}{\sqrt{5}}} = 2.354$$



不拒絕 $H_0 \Rightarrow$ 成績沒有不如去年