1. (a), (b), and (d)

2. reciprocal inequalities = (c)
   developed capabilities = (e)
   innate potentialities = (a)

3. (c) only

5. (a) 68%   (b) When $np \geq 10$ and $n(1-p) \geq 10$

6. (c) It's an estimator of μ, the population mean difference in corneal
   thickness between an eye with glaucoma and a healthy eye.

   (f) A bootstrap sample here satisfies these criteria
   • draw from the original with replacement
   • obtain a sample of the same size as original (violated here)

   (g) A 99% bootstrap percentile interval should extend from the 0.5-percentile
   to the 99.5 - percentile. With 1000 points, these percentiles are 5 away
   from the two ends. Estimating, that is approximately $(-11.1, 5.8)$.

   (h) qt(0.995, df = 7)

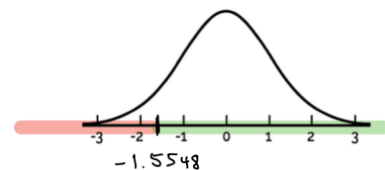   (i) $-2.125 \pm (3.4995) \dfrac{9.5982}{\sqrt{8}}$, or $(-14.00, 9.75)$

7. (a) qnorm(0.06)

   (b) $\hat{p} = \dfrac{57}{100} = 0.57$, $E(\hat{p}) = p = 0.6$, $Var(\hat{p}) = \sqrt{\dfrac{p(1-p)}{n}} = \sqrt{\dfrac{(0.6)(0.4)}{100}} = 0.04899$

   $\Rightarrow Z = \dfrac{\hat{p} - p}{\sqrt{p(1-p)/n}} = \dfrac{0.57 - 0.6}{0.04899} \doteq -0.612$

   (c) pnorm(-0.612)   or   pbinom(57, 100, 0.6)

   (d) (ii)

   (e) The rejection region is $Z < -1.5548$, and
   so $Z = -0.612$ is in the nonrejection
   region. We fail to reject H_0.

   (f) We reject H_0 when the Z-score
   $Z = \dfrac{0.57 - 0.6}{\sqrt{(0.6)(0.4)/n}} < -1.5548 \Rightarrow \left(\dfrac{0.03}{1.5548}\right)^2 > \dfrac{(0.6)(0.4)}{n}$

   $\Rightarrow n > \dfrac{(0.6)(0.4)}{(0.03/1.5548)^2} = 644.64.$ ⟨So $n = 645$ is minimal.⟩