

MAT 112 Worksheet

Monday, October 23, 2006

1. Find the area under the standard normal distribution between

(a) $z = 0$ and $z = 2.34$

(b) $z = 0$ and $z = 1.27$

(c) $z = -1.23$ and $z = 0$

(d) $z = -2.21$ and $z = 1.14$

(e) $z = 1.21$ and $z = 2.41$

2. Let x be a normally distributed continuous random variable with $\mu = 15$ and $\sigma = 4$.

(a) Convert $x = 22$ to a z -value

(b) Convert $x = 12$ to a z -value

(c) Convert $x = 20$ to a z -value

3. Let x be a normally distributed continuous random variable with $\mu = 22$ and $\sigma = 7$.

(a) Find $P(22 < x < 32)$

(b) Find $P(10 < x < 22)$

(c) Find $P(16 < x < 25)$

(d) Find $P(24 < x < 30)$

(e) Find $P(9 < x < 18)$

4. According to a 2002 study by the State Public Interest Research Group's Higher Education Project, the average debt of graduating college seniors was \$16,928, with a standard deviation of \$2,521. Assuming that these data are normally distributed.

(a) Find the probability that a randomly selected college student has debt between \$18,000 and \$20,000.

(b) Find the probability that a randomly selected college students has debt less that \$12,000.