Quiz 10 Review

Name: _Key_

Area Under the Curve, and Calculations with Normal Curves   Date:_____ Period:_____

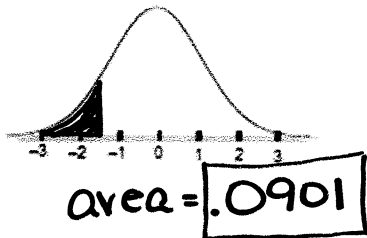## Vocabulary—*Use your notes to find the exact answer that fits each blank.*

1. The edges of Table A give the __Z-Score__; the body of Table A gives the __area__.

2. Table A provides the area under the curve to the __Left__ of a given z-score

3. If you are given an x and asked to find a proportion, percentage, or area then you are solving a Type __1__ calculation problem.

4. If you are given a percentile or percent and asked to find an x then you are solving a Type __2__ calculation problem.

5. In a standardized Normal curve the mean is equal to __0__ and each standard deviation goes up or down by __1__.

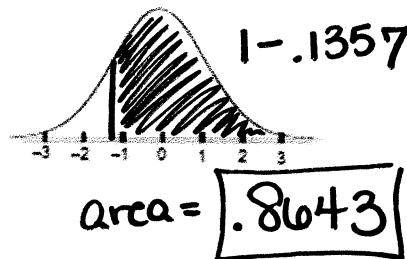## Work Problems—*answer each question fully.*

LESS THAN, GREATER THAN, BETWEEN

Use Table A to find the <u>area under the curve</u> for each of the following statements. In each case, <u>shade the area</u> under the curve and answer to the question.   .9793   .4522
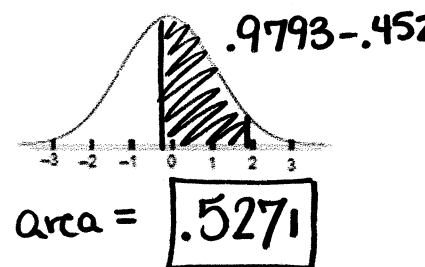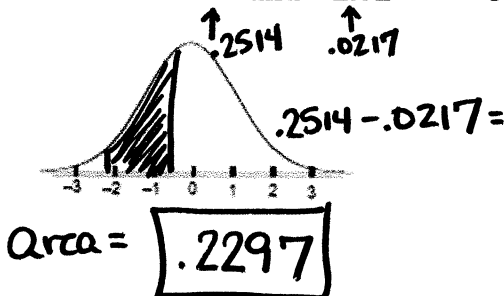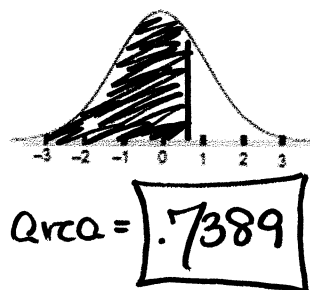
6. less than -1.34

area = .0901

7. greater than -1.10

$1 - .1357$

area = .8643

9. between 2.04 and -0.12

.9793 − .45~

area = .5271

6. between $-.67$ and -2.02

.2514   .0217

.2514 − .0217 =

Area = .2297

8. less than 0.64

Area = .7389

10. greater than 0.78

$1 - .7823$

Area = .2177
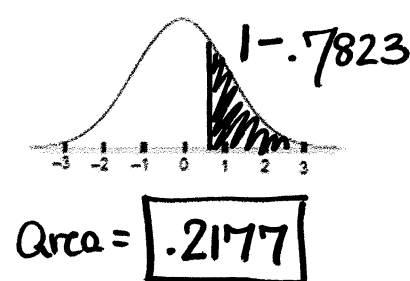
CALCULATIONS WITH NORMAL CURVES

Scores on the Wechsler Adult Intelligence Scale for 20- to 34-year-olds are approximately normally distributed with mean 110 and standard deviation 25.

11. What percent of scores are less than 100?

$$100 \rightarrow \quad Z = \frac{100-110}{25} \rightarrow \frac{\text{Table A area}}{.3446} \rightarrow \boxed{34.5\%}$$
$$Z = -0.40$$

12. How high must a person score to be in the top 25% of all scores?

$$\text{Top } 25\% \rightarrow \text{Bottom } 75\% \rightarrow \text{area:} .7500 \rightarrow \begin{array}{c}\text{Closest area in Table A:}\\ Z = 0.67\end{array} \rightarrow .67 = \frac{X-110}{25}$$
$$\boxed{X = 126.8}$$

13. Find the 59th percentile of the IQ scores distribution of 20 to 34 year olds.

$$59^{th} \rightarrow \text{area:} .5900 \rightarrow \begin{array}{c}\text{Closest area in Table A:}\\ Z = 0.23\end{array} \rightarrow .23 = \frac{X-110}{25}$$
$$\boxed{X = 115.8}$$

14. At what percentile would a person be if they scored a 123 IQ?

$$123 \rightarrow Z = \frac{123-110}{25} \rightarrow \frac{\text{Table A}}{.6985} \rightarrow \boxed{70^{th}}$$
$$Z = .52$$

15. What percent of scores are between 80 and 105?

$$80 \rightarrow \quad Z = \frac{80-110}{25} \rightarrow \frac{\text{Table A:}}{.1151}$$
$$Z = -1.2$$

$$105 \rightarrow Z = \frac{105-110}{25} \rightarrow \frac{\text{Table A}}{.4207}$$
$$Z = -0.2$$

$$\begin{array}{c}\text{Big} - \text{Small}\\ .4207 - .1151 = .3056\end{array} \rightarrow \boxed{30.6\%}$$

16. What percent of scores are greater than 121?

$$121 \rightarrow Z = \frac{121-110}{25} \rightarrow \frac{\text{area}}{.6700} \rightarrow \begin{array}{c}\text{Greater!}\\ 1 - .6700 = .3300\end{array}$$
$$Z = .44$$
$$\boxed{33\%}$$