Problem Solving and Data Analysis Drill 1

This section contains two types of questions. For multiple-choice questions, solve each problem and circle the letter of the answer that you think is the best of the choices given. For Student-Response questions, denoted by the grid-in icon, write your answer in the blank space provided.

DIFFERENT TYPES OF LIGHT BULBS

Type of Bulb	Cost	Life Span
Incandescent	$0.50	Approximately 1,000 hours
Compact Florescent Lamp (CFL)	$1.50	Approximately 10,000 hours
Light Emitting Diode (LED)	$10	Approximately 25,000 hours

1. The table above shows the cost of the life span of several different types of light bulb. What is the ratio of the cost, in cents per hour of life span, of a compact florescent lamp to that of a light emitting diode?

A) 1.5 to 5
B) 3 to 8
C) 3 to 10
D) 4 to 5

2. A graphic designer creates an image for a t-shirt that measures 8 inches tall and 10 inches wide. She can use this image for small and medium t-shirts, but she must increase the size for a large t-shirt. She wants her final image for the large t-shirts to measure 9 inches tall and 11.25 inches wide. At what percent must she print out the image to obtain these measurements?

A) 88.89%
B) 107.5%
C) 112.5%
D) 125%

3. Target heart rates for various health benefits are calculated by taking different percents of a person's maximum heart rate, defined as the difference between 220 and the person's age. A heart rate in the aerobic zone is about 75% of the maximum heart rate and a heart rate in the fat-burning zone is about 55% of the maximum heart rate. What is the difference between the fat-burning heart rate and the aerobic heart rate of a person who is 35 years old?
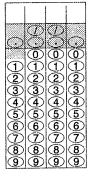
A) 37
B) 44
C) 51
D) 55

ORIGINAL THRIFT STORE PRICES

Cost of items purchased on Monday	Cost of items purchased on Wednesday
$1.50	$0.98
$2.99	$1.99
$2.99	$2.55
$3.49	$4.98
$3.99	

4. Anya shops at a thrift store only on sale days. On Mondays, members with a savings card receive a 25% discount on all items. On select Wednesdays, members receive a 30% discount on all items. The chart above shows the original costs of the items Anya bought one week that included the special Wednesday discount. A tax of 6.25% of the total purchase is applied to the total after all discounts. What is the total amount Anya spent at the thrift store this week, including tax?

A) $17.41
B) $18.57
C) $19.49
D) $19.73

DENSITY OF SUBSTANCES

Substance	Density (g/cm³)
Aluminum	1.71
Copper	9.0
Iron	7.87
Lead	11.4
Osmium	?
Silver	10.5

5. The densities of various substances are listed in the table above. The ratio of the density of aluminum to the density of lead is 3 to x. The ratio of the density of osmium to the density of copper is x to 8. What is the density of osmium in grams per cubic centimeter?