Regents Exam Questions A.CED.A.2: Modeling Linear Equations Name: www.jmap.org

A.CED.A.2: Modeling Linear Equations

- 1 The width of a rectangle is 4 less than half the length. If ℓ represents the length, which equation could be used to find the width, *w*?
 - 1) $w = \frac{1}{2}(4-\ell)$ 2) $w = \frac{1}{2}(\ell-4)$ 3) $w = \frac{1}{2}\ell-4$ 4) $w = 4-\frac{1}{2}\ell$
- 2 A cell phone company charges 60.00 a month for up to 1 gigabyte of data. The cost of additional data is 0.05 per megabyte. If *d* represents the number of additional megabytes used and *c* represents the total charges at the end of the month, which linear equation can be used to determine a user's monthly bill?
 - 1) c = 60 0.05d2) c = 60.05d3) c = 60d - 0.05d4) c = 60 + 0.05d
- 3 A typical cell phone plan has a fixed base fee that includes a certain amount of data and an overage charge for data use beyond the plan. A cell phone plan charges a base fee of \$62 and an overage charge of \$30 per gigabyte of data that exceed 2 gigabytes. If *C* represents the cost and *g* represents the total number of gigabytes of data, which equation could represent this plan when more than 2 gigabytes are used?
 - 1) C = 30 + 62(2 g)3) C = 62 + 30(2 g)2) C = 30 + 62(g 2)4) C = 62 + 30(g 2)
- 4 The cost of one pound of grapes, g, is 15 cents more than one pound of apples, a. The cost of one pound of bananas, b, is twice as much as one pound of grapes. Write an equation that represents the cost of one pound of bananas in terms of the cost of one pound of apples.
- 5 The table below represents the number of hours a student worked and the amount of money the student earned.

Number	Dollars
of Hours	Earned
(<i>h</i>)	(d)
8	\$50.00
15	\$93.75
19	\$118.75
30	\$187.50

Write an equation that represents the number of dollars, d, earned in terms of the number of hours, h, worked. Using this equation, determine the number of dollars the student would earn for working 40 hours.

6 Sandy programmed a website's checkout process with an equation to calculate the amount customers will be charged when they download songs. The website offers a discount. If one song is bought at the full price of \$1.29, then each additional song is \$.99. State an equation that represents the cost, *C*, when *s* songs are downloaded. Sandy figured she would be charged \$52.77 for 52 songs. Is this the correct amount? Justify your answer.

A.CED.A.2: Modeling Linear Equations Answer Section

1 ANS: 3 REF: 011413ia 2 ANS: 4 REF: 061422ai 3 ANS: 4 REF: 081508ai 4 ANS: b = 2(a + 15)REF: 082229ai 5 ANS: $d = 6.25h, 250. \ d = 6.25(40) = 250$ REF: 010933ia 6 ANS: C = 1.29 + .99(s - 1) No, because C = 1.29 + .99(52 - 1) = 51.78REF: 011730ai