Real World Systems of Equations Index Cards

1. Marcus and his friends are having a Final Four party. Marcus buys 5 burgers and 9 sodas for $28.75 at the Beefy Burger joint. When five more of his friends show up, he heads back to Beefy Burger for 10 more burgers and 10 more sodas and spends $47.50.	$5x + 9y = 28.75$ $10x + 10y = 47.50$
2. You buy 5 bags of chips and 9 bags of pretzels for $16.95. Later you buy 10 bags of chips and 10 bags of pretzels for $25.50.	$5x + 9y = 16.95$ $10x + 10y = 25.50$
3. You empty your coin jar and find 49 coins (all nickels and quarters). The total value of the coins is $8.65.	$x + y = 49$ $.05x + .25y = 8.65$
4. You dump the 49 coins from your piggy bank into a CoinstarCountemUp machine. You have only dimes and quarters which the CoinstarCountemUp machine counts as $7.45.	$x + y = 49$ $.10x + .25y = 7.45$

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5. An army of goblins and orcs eats breakfast before a busy day of burning and pillaging. Each orc eats 4 pieces maggot bread while each goblin eats 3 pieces of maggot bread. The army eats 265 pieces of maggot bread. Each orc has 3 weapons. Each goblin has weapons. The army has 190 weapons.	$4x + 3y = 265$ $3x + 2y = 190$
6. The "Pay Upfront" car rental company charges an insurance and gas fee of $33 and daily rental fee of $8 per day. The "Drive Now Pay Later" car rental company charges an insurance and gas fee of $18 and has a daily rental fee of $11 per day.	$y = 8x + 33$ $y = 11x + 18$
7. Katherine is deciding which catering company she should use for Mom's 50th birthday party. At Bashful's Birthday Blast there is a fee of $16.95 and a charge of $9.00 per person. At Bertha's Ballroom Blitz there is a fee of $25.50 and a charge of $5.00 per person.	$y = 9x + 16.95$ $y = 5x + 25.50$
8. Farmer Peter and Farmer Paula are picking apples from their apple trees. Farmer Peter as already picked 287 apples. Farmer Peter picks another 5 apples each minute. Farmer Paula has already picked 154 apples. Farmer Paula picks another 6 apples each minute.	$y = 5x + 287$ $y = 6x + 154$

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9. Jill bought one hot dog and two soft drinks for a cost of $ 4.95. Jack bought three hot dogs and one soft drink for a cost of $ 6.85.	$x + 2y = 4.95$ $3x + y = 6.85$
10. There are a total of 34 lions and hyenas. Each lion eats 4 antelope. Each hyena eats 3 antelope. 117 antelope are eaten.	$x + y = 34$ $4x + 3y = 117$
11. Two companies sell stock shares on Wall Street. Losers Incorporated stock starts with a value of 39.63 and loses $0.08 for each new stockholder. The "Be Rich with Us" Corporation starts with a value of $24.45 and gains $0.03 in value for each new stockholder.	$y = -.08x + 39.63$ $y = 0.03x + 24.45$
12. Two countries are keeping track of the cost of a barrel of oil in their country. In the country, Weneedaoil, a barrel of oil costs of $40.05 and the price increases $0.08 each day. In the country, Wehaveaoil, a barrel of oil costs of $48.74 and the price decreases $0.03 each day.	$y = 0.08x + 40.05$ $y = -.03x + 48.74$

13. The cats Killer and Croaker are catch mice on the waterfront. Killer has already caught 29 mice and catches 87 more mice each month. Croaker has already caught 282 mice and catches 64 more mice each month.	$y = 87x + 29$ $y = 64x + 282$
14. Ted and Ara are saving money. Ara has saved \$1,477 and saves 64 more dollars each payday. Ted has saved \$948 and saves 87 more dollars each pay day.	$y = 87x + 948$ $y = 64x + 1477$
15. Each month, the Weovabillya cell phone company has an operating fee of \$28.55 and charges \$0.48 per minute of calls. Each month, the Dropyocall Corporation has an operating fee of \$59 and charges \$0.19 per minute of calls.	$y = 0.19x + 59$ $y = 0.48 + 28.55$
16. The Slow Fix auto shop charges \$28 for parts and \$48 per hour of labor. The We Work Cheaper auto shop charges \$59 for parts and \$44.90 per hour of labor.	$y = 48x + 28$ $y = 44.9x + 59$

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Answer Key

1. Marcus and his friends are having a Final Four party. Marcus buys 5 burgers and 9 sodas for $28.75 at the Beefy Burger joint. When five more of his friends show up, he heads back to Beefy Burger for 10 more burgers and 10 more sodas and spends $47.50.	$5x + 9y = 28.75$ $10x + 10y = 47.50$ Burgers cost $3.50 and Sodas cost $1.25.
2. You buy 5 bags of chips and 9 bags of pretzels for $16.95. Later you buy 10 bags of chips and 10 bags of pretzels for $25.50.	$5x + 9y = 16.95$ $10x + 10y = 25.50$ Chips cost $1.50 and Pretzels cost $1.05.
3. You empty your coin jar and find 49 coins (all nickels and quarters). The total value of the coins is $8.65.	$x + y = 49$ $0.05x + 0.25y = 8.65$ There are 18 nickels and 31 quarters.
4. You dump the 49 coins from your piggy bank into a Coin-star Count'em Up machine. You have only dimes and quarters which the Coin-star Count'em Up machine counts as $7.45.	$x + y = 49$ $.10x + .25y = 7.45$ There are 32 dimes and 17 quarters.

Answer Key

5. An army of goblins and orcs eats breakfast before a busy day of burning and pillaging. Each orc eats 4 pieces maggot bread while each goblin eats 3 pieces of maggot bread. The army eats 265 pieces of maggot bread. Each orc has 3 weapons. Each goblin has 2 weapons. The army has 190 weapons.	$4x + 3y = 265$ $3x + 2y = 190$ There are 40 Goblins and 35 Orcs.
6. The "Pay Upfront" car rental company charges an insurance and gas fee of $33 and daily rental fee of $8 per day. The "Drive Now Pay Later" car rental company charges an insurance and gas fee of $18 and has a daily rental fee of $11 per day.	$y = 8x + 33$ $y = 11x + 18$ At 5 days, the cost will be $73.
7. Katherine is deciding which catering company she should use for Mom's 50th birthday party. At Bashful's Birthday Blast there is a fee of $20.00 and a charge of $9.00 per person. At Bertha's Ballroom Blitz there is a fee of $100 and a charge of $5.00 per person.	$y = 9x + 20$ $y = 5x + 100$ At 20 People, it will cost $200.

Answer Key

8. Farmer Peter and Farmer Paula are picking apples from their apple trees. Farmer Peter as already picked 287 apples. Farmer Peter picks another 5 apples each minute. Farmer Paula has already picked 154 apples. Farmer Paula picks another 6 apples each minute.	$y = 5x + 287$ $y = 6x + 154$ At 133 minutes, they will have picked 952 apples.
9. Jill bought one hot dog and two soft drinks for a cost of $ 4.95. Jack bought three hot dogs and one soft drink for a cost of $ 6.85.	$x + 2y = 4.95$ $3x + y = 6.85$ A hot dog will costs $1.75 and a soft drink costs $1.60.
10. There are a total of 34 lions and hyenas. Each lion eats 4 antelope. Each hyena eats 3 antelope. 117 antelope are eaten.	$x + y = 34$ $4x + 3y = 117$ There are 15 lions and 19 hyenas.
11. Two companies sell stock shares on Wall Street. Losers Incorporated stock starts with a value of $39.63 and loses $0.08 for each new stockholder. The "Be Rich with Us" Corporation starts with a value of $24.45 and gains $0.03 in value for each new stockholder.	$y = -.08x + 39.63$ $y = 0.03x + 24.45$ At 138 shareholders, the cost will be $28.59 per share.

Answer Key

12. Two countries are keeping track of the cost of a barrel of oil in their country. In the country, Weneedaoil, a barrel of oil costs of $40.05 and the price increases $0.08 each day. In the country, Wehaveaoil, a barrel of oil costs of $48.74 and the price decreases $0.03 each day.	$y = 0.08x + 40.05$ $y = -.03x + 48.74$ At 79 days, the cost will be $46.37.
13. The cats Killer and Croaker are catch mice on the waterfront. Killer has already caught 29 mice and catches 87 more mice each month. Croaker has already caught 282 mice and catches 64 more mice each month.	$y = 87x + 29$ $y = 64x + 282$ At 11 months, there will be 986 mice.
14. Ted and Ara are saving money. Ara has saved $1,477 and saves 64 more dollars each payday. Ted has saved $948 and saves 87 more dollars each pay day.	$y = 87x + 948$ $y = 64x + 1477$ At 23 paydays, they both will be $2949.

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Answer Key

15. Each month, the Weovabillya cell phone company has an operating fee of $28.55 and charges $0.48 per minute of calls. Each month, the Drop-Yo-Call Corporation has an operating fee of $59 and charges $0.19 per minute of calls.	$y = 0.19x + 59$ $y = 0.48x + 28.55$ At 105 minutes, the cost will be $78.95.
16. The Slow Fix auto shop charges $28 for parts and $48 per hour of labor. The We Work Cheaper auto shop charges $59 for parts and $44.90 per hour of labor.	$y = 48x + 28$ $y = 44.9x + 59$ At 10 hours they will cost $508.