

Equations and Inequalities in the Real World

KEY

- 1) Choose the most correct real-world scenario that can be represented with the equation $0.95x = 0.55x + 60$.
- Toony Tunes charges \$0.95 for each song you download and an annual membership fee of \$60. Up With Downloads charges \$0.55 for each song you download. How many songs must a customer download in a year so that the cost will be the same at both websites?
 - Toony Tunes charges \$0.95 for each song you download. Up with Downloads charges \$0.55 for each song and gives you a one-time \$60 discount when you sign up. How many songs must a customer download in a year so that the cost will be the same at both websites?
 - Toony Tunes charges \$0.95 for each song you download. Up With Downloads charges \$0.55 for each song but also charges an annual membership fee of \$60. How many songs must a customer download in a year so that the cost will be the same at both websites?
 - Toony Tunes charges \$0.95 for each song you download. Up With Downloads charges \$0.55 for each song but also charges an annual membership fee of \$60. How many songs must a customer download in a year so that Toony Tunes will be a better deal than Up with Downloads?
- 2) Choose the most correct real-world scenario that can be represented with the equation $1.25x = 0.75x + 50$.
- A store charges \$0.75 per bathroom tile and lets you use their installation tools for free. Another store charges \$1.25 per tile and charges you \$50 to use their tools. How many tiles would you need to buy for the total cost to be equal for the two stores?
 - A store charges \$1.25 per bathroom tile and lets you use their installation tools for free. Another store charges \$0.75 per tile but charges you \$50 to use their tools. How many tiles would you need to buy for the total cost to be the same?
 - A store charges \$50 per bathroom tile but gives a \$0.75 discount if you use their installation tools. Another store charges \$1.25 per tile. How many tiles would you need to buy for the total cost to be same at either store?
 - A store charges \$1.25 per bathroom tile. Another store charges \$0.75 per bathroom tile and gives you a \$50 discount if you use your own tools to install it. How many bathroom tiles would you need to buy for the total cost to be the same at either store?
- 3) Choose the most correct real-world scenario that can be represented with the equation $55 + 0.25m = 45 + 0.35m$
- Rapid Rental Car charges a \$40 rental fee, \$15 for gas, and \$0.25 per mile driven. For the same car, Capital Cars charges \$45 for rental and gas and \$0.35 per mile. For how many miles is the rental cost at both companies the same?
 - Rapid Rental Car charges \$0.25 per mile driven to rent a car. Capital Cars charges \$45 for the rental fee and, \$15 for gas, and \$40 for insurance to rent a car, plus \$0.35 for every mile driven. For how many miles is the cost equal at the two companies?
 - Capital Cars charges a \$45 rental fee and \$0.25 for every mile driven. Rapid Rental Cars charges a \$55 rental fee and \$0.35 for every mile driven. How many miles would someone need to drive so the costs at the two companies are equivalent?
 - Capital Cars charges a \$55 rental fee. Rapid Rental Car charges a \$45 rental fee plus \$0.35 for every mile driven. For how many miles is the rental cost at both companies the same?

- 4) Choose the most correct real-world scenario that can be represented with the inequality $3x - 4 > 2x - 1$.

- a) Shelby sold scarves for \$3 each and paid her mom \$4 for supplies. Katie sold scarves for \$2 each and only had to pay \$1 for her supplies. How many scarves have to be sold before Shelby will make more money than Katie?
- b) Shelby sold scarves for \$4 each and paid her mom \$3 for supplies. Katie sold scarves for \$1 each and only had to pay \$2 for her supplies. How many scarves have to be sold before Shelby will make more money than Katie?
- c) Shelby sold scarves for \$3 each and paid her mom \$4 for supplies. Katie sold scarves for \$2 each and only had to pay \$1 for her supplies. How many scarves have to be sold before Katie will make more money than Shelby?
- d) Shelby sold scarves for \$3 each and paid her mom \$4 for supplies. Katie sold scarves for \$2 each and only had to pay \$1 for her supplies. How many scarves have to be sold before Shelby will make at least the same amount of money than Katie?

- 5) Choose the most correct real-world scenario that can be represented with the inequality $2x + 5 \geq 3x - 3$.

- a) Cole bought 2 packages of hot wheels to add to the 5 he already had. Heath bought three packages of hot wheels and decided he didn't like 3 of the cars so he gave them away. How many cars must be in the packages for Heath to have at least the same amount of hot wheels as Cole?
- b) Cole bought 3 packages of hot wheels to add to the 5 he already had. Heath bought three packages of hot wheels and decided he didn't like 5 of the cars so he gave them away. How many cars must be in the packages for Cole to have at least the same amount of hot wheels as Heath?
- c) Cole bought 2 packages of hot wheels to add to the 5 he already had. Heath bought three packages of hot wheels and decided he didn't like 3 of the cars so he gave them away. How many cars must be in the packages for Cole to have at least the same amount of hot wheels as Heath?
- d) Cole bought 2 packages of hot wheels to add to the 5 he already had. Heath bought three packages of hot wheels and decided he didn't like 3 of the cars so he gave them away. How many cars must be in the packages for Cole to have no more hot wheels than Heath?

- 6) Choose the most correct real-world scenario that can be represented with the inequality $5 + 3x < 4 + 5x$.

- a) There are five dirt bike racers at the track and then three more families arrive. There were 4 quad racers at the track before five more quad families arrive. How many people have to be in each family for there to be fewer dirt bike racers than quad racers?
- b) There are five dirt bike racers at the track and then three more families arrive. There were 4 quad racers at the track before five more quad families arrive. How many people have to be in each family for there to be fewer quad racers than dirt bike racers?
- c) There are three dirt bike racers at the track and then five more families arrive. There were 5 quad racers at the track before four more quad families arrive. How many people have to be in each family for there to be fewer dirt bike racers than quad racers?
- d) There are five dirt bike racers at the track and then three more families arrive. There were 4 quad racers at the track before five more quad families arrive. How many people have to be in each family for there to be at least the same number of dirt bike racers as quad racers?