

Algebra Word Problems Worksheets

1. Justin has \$7.50 more than Eva, and Emma has \$12 less than Justin. Together, they have a total of \$63.00. How much money does each person have?

2. A cell phone company has a basic monthly plan of \$40 plus \$0.45 for any minutes used over 700. Before receiving his statement, John saw he was charged a total of \$48.10. Write and solve an equation to determine how many minutes he must have used during the month. Write an equation without decimals

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1. Justin has \$7.50 more than Eva, and Emma has \$12 less than Justin. Together, they have a total of \$63.00. How much money does each person have?

The amount of money Eva has: x dollars

The amount of money Justin has: $(x + 7.50)$ dollars

The amount of money Emma has: $((x + 7.50) - 12)$ dollars, or $(x - 4.50)$ dollars

$$x + (x + 7.50) + (x - 4.50) = 63$$

$$3x + 3 = 63$$

$$3x + 3 - 3 = 63 - 3$$

$$3x + 0 = 60$$

$$\left(\frac{1}{3}\right) 3x = \left(\frac{1}{3}\right) 60$$

$$x = 20$$

If the total amount of money all three people have is \$63, then Eva has \$20, Justin has \$27.50, and Emma has \$15.50.

2. A cell phone company has a basic monthly plan of \$40 plus \$0.45 for any minutes used over 700. Before receiving his statement, John saw he was charged a total of \$48.10. Write and solve an equation to determine how many minutes he must have used during the month. Write an equation without decimals

The number of minutes over 700: m minutes

$$40 + 0.45m = 48.10$$

$$0.45m + 40 - 40 = 48.10 - 40$$

$$0.45m = 8.10$$

$$\left(\frac{1}{0.45}\right)(0.45m) = 8.10 \left(\frac{1}{0.45}\right)$$

$$m = 18$$

$$4000 + 45m = 4810$$

$$45m + 4000 - 4000 = 4810 - 4000$$

$$45m = 810$$

$$\left(\frac{1}{45}\right)(45m) = 810 \left(\frac{1}{45}\right)$$

$$m = 18$$

John used 18 minutes over 700 for the month. He used a total of 718 minutes.

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3. The cost of admission to a history museum is \$3.25 per person over the age of 3; kids 3 and under get in for free. If the total cost of admission for the Warrick family, including their two 6-month old twins, is \$19.50, find how many family members are over 3 years old.

4. A vending machine has twice as many quarters in it as dollar bills. If the quarters and dollar bills have a combined value of \$96.00, how many quarters are in the machine?

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3. The cost of admission to a history museum is \$3.25 per person over the age of 3; kids 3 and under get in for free. If the total cost of admission for the Warrick family, including their two 6-month old twins, is \$19.50, find how many family members are over 3 years old.

If we let w represent the number of Warrick family members, then $w - 2$ represents the number of family members over the age of 3 years.

$$3.25(w - 2) = 19.5$$

$$3.25w - 6.5 = 19.5$$

$$3.25w - 6.5 + 6.5 = 19.5 + 6.5$$

$$3.25w = 26$$

$$w = 8$$

$$w - 2 = 6$$

There are 6 members of the Warrick family over the age of 3 years.

4. A vending machine has twice as many quarters in it as dollar bills. If the quarters and dollar bills have a combined value of \$96.00, how many quarters are in the machine?

If we let d represent the number of dollar bills in the machine, then $2d$ represents the number of quarters in the machine.

$$2d \cdot \left(\frac{1}{4}\right) + 1d \cdot (1) = 96$$

$$\frac{1}{2}d + 1d = 96$$

$$1\frac{1}{2}d = 96$$

$$\frac{3}{2}d = 96$$

$$\frac{2}{3}\left(\frac{3}{2}d\right) = \frac{2}{3}(96)$$

$$d = 64$$

$$2d = 128$$

There are 128 quarters in the machine.

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5. A company buys a digital scanner for \$12,000. The value of the scanner is $12,000 \left(1 - \frac{n}{5}\right)$ after n years. The company has budgeted to replace the scanner when the trade-in value is \$2,400. After how many years should the company plan to replace the machine in order to receive this trade-in value?

6. Caitlan went to the store to buy school clothes. She had a store credit from a previous return in the amount of \$39.58. If she bought 4 of the same style shirt in different colors and spent a total of \$52.22 after the store credit was taken off her total, what was the price of each shirt she bought?

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5. A company buys a digital scanner for \$12,000. The value of the scanner is $12,000 \left(1 - \frac{n}{5}\right)$ after n years. The company has budgeted to replace the scanner when the trade-in value is \$2,400. After how many years should the company plan to replace the machine in order to receive this trade-in value?

$$\begin{aligned}12,000 \left(1 - \frac{n}{5}\right) &= 2,400 \\12,000 - 2,400n &= 2,400 \\-2,400n + 12,000 - 12,000 &= 2,400 - 12,000 \\-2,400n &= -9,600 \\n &= 4\end{aligned}$$

They will replace the scanner after 4 years.

6. Caitlan went to the store to buy school clothes. She had a store credit from a previous return in the amount of \$39.58. If she bought 4 of the same style shirt in different colors and spent a total of \$52.22 after the store credit was taken off her total, what was the price of each shirt she bought?

t: the price of one shirt

$$\begin{aligned}4t - 39.58 &= 52.22 \\4t - 39.58 + 39.58 &= 52.22 + 39.58 \\4t + 0 &= 91.80 \\ \left(\frac{1}{4}\right)(4t) &= \left(\frac{1}{4}\right)(91.80) \\t &= 22.95\end{aligned}$$

The price of one shirt was \$22.95.

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