

Unit 8 Rational Functions
In Class Applications
Algebra 2

Name: _____

Date: _____

1. If a basketball team's present record is 42 wins and 36 losses, how many consecutive games must it win so that its winning record reaches 60%?
2. Sam has 55 milliliters of a solution that is currently 38% acid and 62% water.
 - a. How many milliliters of pure acid is in the current solution?
 - b. Find the amount of acid that must be added to create a solution that is 64% acid.
3. In a container of 2% milk, 2% of the mixture is fat. How much of the liquid in a 1 gallon container of 2% milk would need to be emptied and replaced with pure fat so that the container could be labeled as whole (3.25%) milk?
4. Pure gold is too soft to be used for jewelry, so gold is always mixed with other metals. 18-karat gold is 75% gold and 25% other metals. How much pure gold must be mixed with 5 oz of 18-karat gold to make a 22-karat (91.7%) gold mixture?

Unit 8 Rational Functions
In Class Applications
Algebra 2

Name: _____

Date: _____

1. If a basketball team's present record is 42 wins and 36 losses, how many consecutive games must it win so that its winning record reaches 60%?
2. Sam has 55 milliliters of a solution that is currently 38% acid and 62% water.
 - a. How many milliliters of pure acid is in the current solution?
 - b. Find the amount of acid that must be added to create a solution that is 64% acid.
3. In a container of 2% milk, 2% of the mixture is fat. How much of the liquid in a 1 gallon container of 2% milk would need to be emptied and replaced with pure fat so that the container could be labeled as whole (3.25%) milk?
4. Pure gold is too soft to be used for jewelry, so gold is always mixed with other metals. 18-karat gold is 75% gold and 25% other metals. How much pure gold must be mixed with 5 oz of 18-karat gold to make a 22-karat (91.7%) gold mixture?

Unit 8 Rational Functions
In Class Applications
Algebra 2

Name: _____

Date: _____

1. If a basketball team's present record is 42 wins and 36 losses, how many consecutive games must it win so that its winning record reaches 60%?
2. Sam has 55 milliliters of a solution that is currently 38% acid and 62% water.
 - a. How many milliliters of pure acid is in the current solution?
 - b. Find the amount of acid that must be added to create a solution that is 64% acid.
3. In a container of 2% milk, 2% of the mixture is fat. How much of the liquid in a 1 gallon container of 2% milk would need to be emptied and replaced with pure fat so that the container could be labeled as whole (3.25%) milk?
4. Pure gold is too soft to be used for jewelry, so gold is always mixed with other metals. 18-karat gold is 75% gold and 25% other metals. How much pure gold must be mixed with 5 oz of 18-karat gold to make a 22-karat (91.7%) gold mixture?

Application worksheet

AZ

1. $\frac{\text{wins}}{\text{total}} = 60\%$

$$\frac{42+x}{78+x} = \frac{60}{100}$$

$x \rightarrow$ won games

$$100(42+x) = 60(78+x)$$

$$4200 + 100x = 4680 + 60x$$

$$40x = 480$$

$$x = 12$$

12 games

2. a) $55(0.38) = \text{20.9 mL acid}$

b) $\frac{\text{amount acid}}{\text{total}} = 64\%$

$$\frac{55(0.38) + x}{55 + x} = \frac{64}{100} \quad x \rightarrow \text{pure acid mL}$$

$$100(20.9 + x) = 64(55 + x)$$

$$2090 + 100x = 3520 + 64x$$

$$36x = 1430$$

$x = 39.72 \text{ mL of acid}$

3

$$4. \frac{\text{gold amount}}{\text{total}} = 91.7\%$$

$x \rightarrow$ gold added

$$\frac{5(0.75) + x}{5 + x} = \frac{91.7}{100}$$

$$100(3.75 + x) = 91.7(5 + x)$$

$$375 + 100x = 458.5 + 91.7x$$

$$8.3x = 83.5$$

$$\boxed{x = 10.06 \text{ oz of gold}}$$