

Advanced Algebra Apps

Quarter 1 Warmups



Warmup Adv. Alg. 5

1 & 2 Sep 2010

Three cups hold a penny, a dime, and a quarter.

The black cup is left of the white cup.

The penny is left of the dime.

The gray cup is right of the quarter.

The dime is right of the gray cup.

In which cups are the coins?



Warmup Adv. Alg. 5

3 & 7 Sep 2010

You have 20 coins worth \$1.35. If all the coins are nickels or dimes, how many of each do you have?



Warmup Adv. Alg. 5

8 & 9 Sep 2010

Make \$1.00 using
exactly 21 coins



Warmup Adv. Alg. 5

10 & 13 Sep 2010

You have a jar of change with \$6.15 in it. As you're counting it, you notice that you have exactly the same number of pennies, nickels, dimes, and quarters. How many coins are in the jar?



Warmup Adv. Alg. 5

14 & 15 Sep 2010

If Bill Gates has \$30 billion and decides to share it with each of 300 million Americans, how much will you get?



Warmup Adv. Alg. 5

16 & 17 Sep 2010

Several students want to pitch in for a gift for their awesome math teacher. If five students chip in it will cost each one \$2 more than if seven chip in. How much is this wonderful gift?



Warmup Adv. Alg. 5

20 & 21 Sep 2010

You and I chip in to pay for a \$5 box of 35 cookies. If I put in \$3 and you put in \$2, how many cookies should each of us get?



Warmup Adv. Alg. 5

22 & 23 Sep 2010

Why are 2008 dollar bills worth more than 2007 dollar bills?



Warmup Adv. Alg. 5

24 & 27 Sep 2010

If you buy a \$4 coffee each morning before school, how much will you spend on coffee by the end of the school year?



Warmup Adv. Alg. 5

28 & 29 Sep 2010

If there are 8 working hours in a day, and you work Monday through Friday, how many working hours are there in a

Week?

Month?

Year?

Lifetime?



Warmup Adv. Alg. 5

30 Sep & 1 Oct 2010

Assuming you work 40 hours per week, how much money would you need to make per hour to have a salary of \$1 million per year?



Warmup Adv. Alg. 5

4 & 5 Oct 2010

Ma Waddell made some pizza dough using extra strong yeast. When left in a warm place it always doubles in size every 24 hours. If it takes 4 days to rise to the top of her extra large bowl, after how long would it be exactly half way up the bowl?



Warmup Adv. Alg. 5

6 & 7 Oct 2010

How long does it take an investment to double at 5% compounded continuously?



Warmup Adv. Alg. 5

8 & 11 Oct 2010

If I had \$10 more than I do now, then I would have six times as much money as I would if I had \$10 less. How much money do I have?



Warmup Adv. Alg. 5

12 & 13 Oct 2010

You are trying to decide whether to take three friends to one movie or one friend to three movies. Which is cheaper?



Warmup Adv. Alg. 5

14 & 15 Oct 2010

A stack of 100 nickels has a height of 6.25 inches. What is the value, in dollars and cents, of an 8-foot high stack of nickels?



Warmup Adv. Alg. 5

18 & 19 Oct 2010

What is the largest amount of money you can have in coins and not be able to make change for a dollar?



Warmup Adv. Alg. 5

20 & 21 Oct 2010

Explain how the following could be true:

$$15 + 1 = 1$$

e.g. 15 tablespoons + 1 tablespoon = 1 cup

How many can you come up with?

Hint: There are some with money!



Warmup Adv. Alg. 5

Literal Answers:

15 pennies + 1 dime = 1 quarter

15 nickels + 1 quarter = 1 dollar

15 dimes + 1 fifty-cent piece = 1 two-dollar bill

15 ounces + 1 ounce = 1 pound

15 cups + 1 cup = 1 gallon

15 fluid ounces + 1 fluid ounce = 1 pint

But then have some fun with it...

15 quarters + 1 dollar = 1 gallon of gas (very expensive gas!)

15 students + 1 teacher = 1 very small class

15 birthdays + 1 birthday = 1 legal driver

15 weeks of school + 1 week of finals = 1 college semester

15 days + 1 fortnight = 1 month of February in a leap year

15 minutes + 1 quarter hour = 1 half an hour

15 minutes + 1 half hour = 1 half a soccer game

15 electrons + 1 electron = 1 outer shell of a sulfur atom

15 Sundays + 1 Sunday = 1 NFL football season

15 pawns + 1 pawn = 1 set of chess pawns

15 hours + 1 hour = 1 waking part of the day (if you sleep 8 hours)

15 strikes + 1 fly ball = 1 inning of baseball

15 rounds of boxing + 1 quarter hour = 1 hour



Warmup Adv. Alg. 5

1 & 2 Sep 2010

Your boss is having a good month so she gives you a 10% raise. The next month is slow so she is forced to give you a 10% cut in salary. Are you back where you started?



Warmup Adv. Alg. 5

1 & 2 Sep 2010

Citizens of Newton pay as much income tax (percentage-wise) as they make in dollars per week. What is the optimal salary in Newton?



Warmup Adv. Alg. 5

1 & 2 Sep 2010

The price of an item is cut 40% for a sale. When the sale is over, the storeowner wants to bring the price back up to where it was before the sale. What percentage of the sale price must be added to the sale price to bring the price back to the original selling price?



Warmup Adv. Alg. 5

1 & 2 Sep 2010

Which is longer, September
or November?



Warmup Adv. Alg. 5

1 & 2 Sep 2010

Suppose you have six coins. There are more quarters than nickels, fewer pennies than nickels, fewer dimes than pennies, and at least one penny. What is the total value of the coins?

