

Real World Graduation: Question 43: Gold Coins

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Question 43

Gold has historically been recognized as the ultimate “safe” money because it never loses its value. On the other hand, many paper currencies throughout history have eventually become worthless. Some noteworthy examples are Continental dollar issued by Congress during the American Revolution (1777-1781), the German mark in 1923, the Yugoslav dinar in 1994, and the Zimbabwean dollar in 2008. Many people choose to hedge against paper currencies by purchasing gold coins as a form of insurance, which could be sold or bartered in the event the paper currency ever fails. Many types are offered for sale as follows:

- a) Authentic St. Gauden’s \$20 Double Eagles (originally issued between 1908 and 1929). A total of approximately 65,000,000 were originally minted. It is 34 mm in diameter, and contains 42.0 milligrams (mg) of pure gold. Each can be purchased for \$ 29.95 US.
- b) Tribute proof \$10 Liberty Head Eagles (originally issued between 1866 and 1907). Approximately 64,000,000 total were minted. It is 27 mm in diameter, and contains 21 mg of pure gold. Each can be purchased for \$ 19.95 US.
- c) 24 carat gold clad \$10 Indian Head Eagles (originally issued between 1908 and 1933). Approximately 15,000,000 total were minted. It is 27 mm in diameter, and contains 19 mg of pure gold. Each can be purchased for \$ 19.95 US.
- d) Private mint authorized \$5 Indian Head Half Eagles (originally issued intermittently between 1908 and 1929). Approximately 14,000,000 total were minted. It is 21.6 mm in diameter, and contains 8.5 mg of pure gold. Each can be purchased for \$ 9.99 US.

A famous company advertises these coins for sale on TV, radio, and newspaper ads, reminding the audience that these coins are rare and out of circulation, and that gold is always highly sought after both for its intrinsic value and in the form of beautiful old coins. The ad goes on to remind the audience that gold coins should be part of every investment portfolio. Which of these coins offers the best investment value?

- a) The Double Eagle, because it is the largest physical coin and has the second-largest amount of pure gold.
- b) The Liberty Head, because it contain the greatest amount of pure gold.
- c) The Indian Head Eagle, because it has the lowest price and is still pure gold.
- d) The Half Eagle, because it is the rarest one (fewest were minted), which makes it more valuable.
- e) It is best to have a variety of these coins as an investment. The prudent investor, or person who wants some insurance against a currency collapse, would be wise to buy some of each, but not necessarily in equal amounts. This is important to diversify one’s gold investments, even more so than stocks and bonds.

The additional information required to determine the best investment value is as follows:

- a. The current price of gold is about \$120 per troy ounce.
- b. There are 31.103 grams per troy ounce, and 1000 mg per gram.

Answer to Question 43

This is a trick question. All the provided answers are wrong: none of these so-called gold coins are an investment. In fact, they are nearly worthless. To see why, it is an easy matter to calculate the actual amount of gold in each one. The formula for the number of troy ounces, W , of gold in each coin is:

$$W(\text{oz}) = \frac{X(\text{mg})}{1} \frac{1(\text{g})}{1000(\text{mg})} \frac{1(\text{oz})}{31.103(\text{g})}$$

On the right side, the units of grams (g) and milligrams (mg) cancel since they appear in both numerator and denominator, and we are left with the formula for troy ounces on both sides:

$$W = \frac{X}{31103}$$

where W is the weight of gold in troy ounces, and X is the weight of gold in mg. Using this formula, we determine that:

- a) the \$20 St. Gauden's has $42/31103 = 0.00135$ troy ounces of gold
- b) the \$10 Liberty Head has $21/31103 = 0.000675$ troy ounces of gold
- c) the \$10 Indian Head Eagle has $19/31103 = 0.00061$ troy ounces of gold
- d) the \$5 Indian Head Half Eagle has $8.5/31103 = 0.000273$ troy ounces of gold.

If the price of gold is \$1200 per troy ounce, the approximate value of the gold in each one is:

- a) \$20 St. Gauden's: \$1.62
- b) \$10 Liberty Head: \$0.81
- c) \$10 Indian Head Eagle: \$0.73
- d) \$5 Indian Half Eagle: \$0.33

No matter how much you pay for the coins, or even if you get two for the price of one, these are nearly worthless. The advertisers are using two tricks here. First, they call out the amount of gold in milligrams, which is a very small unit of weight, and which is unfamiliar to most Americans. A milligram is one-thousandth of a gram, and there are 31.3 grams in a troy ounce. Using a very small unit of weight, they can accurately use a fairly large number of those units, giving the (false) impression of a significant amount of gold in the coins. Secondly, they refer to the coins using euphemisms such as "authentic", "tribute", "authorized", and "gold clad", which have no actual legal meaning. If they were "genuine" coins, then they would be the real thing (and would be priced in the thousands of dollars each); these other euphemisms mean whatever the advertiser wants you to believe it means. Note also that the real coins were "originally issued early in the 20th century", not these fakes that are being offered for sale. In this case, although not explained clearly, the advertiser's meaning of "authentic" is "a crude disk of bronze or lead painted over with tiny amount of gold".

It may be a good idea to own some gold. If you decide to do so, only buy true gold bullion coins from a reputable dealer. Before buying them, look up the current commodity price (bullion spot price) of gold and compare it to the asking price quoted by the gold dealer. The quoted price should be slightly higher than the spot price (which is the dealer's commission for storage and handling, same as any other merchant). In this case, if the spot-price of gold is \$1200 per ounce, a half-ounce bullion coin should be priced slightly above \$600. You will pay more for true "rare" or "collectable" coins.