

Name:

Quiz 4

A, B, C and D inherit a painting. These are their values for the painting:

$$a = \$8,000 \quad b = \$10,000 \quad c = \$10,000 \quad d = \$12,000$$

This entire quiz is about finding an arrangement that is fair, equitable and Pareto-optimal.

1. Who will get the painting?
2. What fraction of their value will each player get?
3. Find the payouts, and fill in the blanks below:

$$X_A = \underline{\hspace{2cm}} \quad X_B = \underline{\hspace{2cm}} \quad X_C = \underline{\hspace{2cm}} \quad X_D = \underline{\hspace{2cm}}$$

4. Does B envy C? Why?
5. Does B envy D? Why?

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1. Who will get the painting? D

2. What fraction of their value will each player get?

$$q = \frac{12000}{40000} = \frac{12}{40} = \frac{3}{10}$$

3. Find the payouts, and fill in the blanks below:

$$X_A = \frac{3}{10}(8000) = 2400$$

$$X_B = X_C = \frac{3}{10}(10000) = 3000$$

$$X_D = \frac{3}{10}(12000) = 3600$$

$$\text{check: } 2400 + 3000 + 3000 + 3600 = 12000 \checkmark$$

$$X_A = \underline{2400} \quad X_B = \underline{3000} \quad X_C = \underline{3000} \quad X_D = \underline{3600}$$

4. Does B envy C? Why?

No. $3000 = 3000$

5. Does B envy D? Why?

B thinks D got $10000 - 2400 - 3000 = 4600$

So, no, B does not envy D. since $3000 > 1600$