تم تحميل هذا الملف من موقع المناهج الإماراتية

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Name

Problem-Solving Investigation

STRATEGY: Make an Organized List

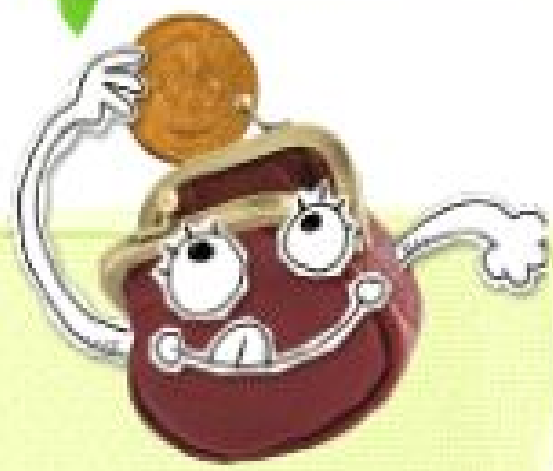
Lesson 7

ESSENTIAL QUESTION?

How can conversion of measurements help me solve real-world problems?

Learn the Strategy

Ismail has 0.24 of a dirham. How many different combinations of coins could he have?



1 Understand

What facts do you know?

Ismail has 0.24 of a dirham.

What do you need to find?

the number of possible coin combinations

2 Plan

I will make an organized list to solve the problem.

3 Solve

0.24 of a dirham = 24 fils

- 2 10-fils coins, 4 1-fils coins
- 4 5-fils coins, 4 1-fils coins
- 24 1-fils coins
- 1 10-fils coin, 2 5-fils coins, 4 1-fils coins
- 3 5-fils coins, 9 1-fils coins
- 1 10-fils coin, 14 1-fils coins
- 1 10-fils coin, 1 5-fils coin, 9 1-fils coins
- 2 5-fils coins, 14 1-fils coins
- 1 5-fils coin, 1-fils coin

There are nine different combinations.

4 Check

Does your answer make sense? Explain.

Sample answer: yes; All combinations have been accounted for.

Practice the Strategy

Salem has three cats. One has a mass of 4,523 g. One has a mass of 5,012 g. One has a mass of 4,702 g. If Salem picks up two of the cats at once, what are the possible total masses that Salem is carrying?

1 Understand

What facts do you know?

Salem has 3 cats. Their masses are 4,523 g, 5,012 g, and 4,702 g.

What do you need to find?

the possible total masses of two of the cats

2 Plan

I will make an organized list to solve the problem.

3 Solve

Find all combinations.

- 4,523 g + 5,012 g = 9,535 g
- 4,523 g + 4,702 g = 9,225 g
- 5,012 g + 4,702 g = 9,714 g

So, the possible total masses are 9,535 g, 9,225 g, and 9,714 g.

4 Check

Does your answer make sense? Explain.

Sample answer: yes; There are only three possible combinations.

Name

Apply the Strategy

Solve each problem by making an organized list.

1. Mathematical Practice 1 **Make a Plan** Buthaina has 0.16 of a dirham. How many different combinations of coins could she have?

   6 combinations

2. There were three races at the track meet. The distances were 100 m long, 800 m long, and 3,200 m long. Suppose Halima ran two of the races. What are the possible total distances that she ran?

   900 m, 3,300 m, and 4,000 m

3. Hareb has 3,700 mL of lemonade in a pitcher. He has three cups. Their capacities are 320 mL, 495 mL, and 583 mL. Suppose Hareb fills two of the cups. What are the possible capacities of lemonade that he could have left in the pitcher?

   2,885 mL, 2,797 mL, and 2,622 mL

4. Jamal has 0.18 of a dirham. How many possible combinations of coins could he have?

   6 combinations

5. Khalaf has four pieces of clay to make a clay pot. The masses of the pieces are 10 g, 15 g, 20 g, and 14 g. If he uses three of the pieces, what are the possible total masses of the clay pot?

   45 g, 39 g, 44 g, 49 g

My Work

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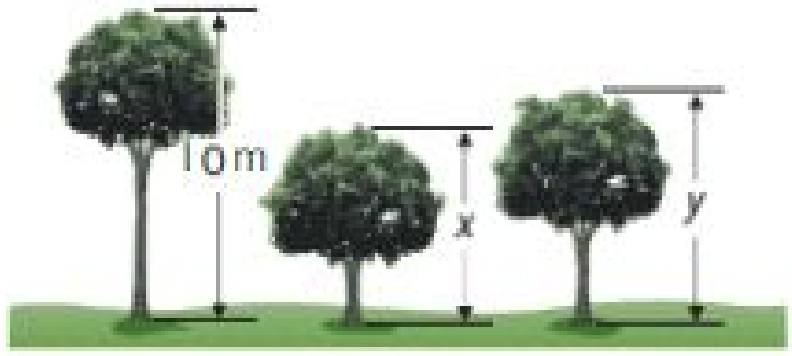
Review the Strategies

Use any strategy to solve each problem.

- Make an organized list.
- Guess, check, and revise.
- Find extra or missing information.
- Use logical reasoning.

6. There are three trees. The second tree is half as tall as the first. The third tree is taller than the second tree and shorter than the first tree. The total height of the trees is 24 m. What is the height of each tree?



10 m, 5 m, 9 m

7. There are three lines. The first line is 3 times as long as the second. The second line is 4 m longer than the third. The third line is 2 m long. How long is the first line?

18 m

8. Rana has 5 coins that total 62 fils. What are the coins?

two 25-fils coins, one 10-fils coin, and two 1-fils coins

9. **Mathematical Practice** **Model Math** Tarek, Amer, Abdalla, and Obaid are going hiking in pairs. How many different pairs of hiking partners are possible? List them.

6; Tarek – Amer, Amer – Abdalla, Tarek – Abdalla, Amer – Obaid, Tarek – Obaid, Abdalla – Obaid

My World

الاسم .....

واجباتي المنزلية

الدرس 7

استقصاء حل المسائل الاستراتيجية: إعداد قائمة منظمة

مساعد الواجب المنزلي

تستطيع حقيبة الظهر الخاصة بليلى حمل كتلة مقدارها 5 kg. انظر إلى العناصر المبينة في المخطط؛ ما المجموعات المتوافقة المحتملة للعناصر التي تستطيع ليلى حملها في حقيبة الظهر الخاصة بها دون أن تتعدى 5 kg؟

الكتلة	العنصر
3 kg	كتاب الرياضيات
2 kg	مجموعة المستلزمات العلمية
2 kg	صندوق الغداء
1 kg	زجاجة مياه

1 الفهم

ما الحقائق التي تعرفها؟

تستطيع حقيبة الظهر الخاصة بليلى حمل كتلة مقدارها 5 kg.

ما الذي تحتاج إلى إيجاده؟

أحتاج إلى إيجاد المجموعات المتوافقة المحتملة للعناصر التي تستطيع ليلى حملها في حقيبة الظهر الخاصة بها.

2 التخطيط

سأعد قائمة منظمة بالمجموعات المتوافقة المحتملة.

3 الحل

- كتاب رياضيات ومجموعة المستلزمات العلمية—5 kg
- كتاب رياضيات وصندوق غداء—5 kg
- كتاب الرياضيات وزجاجة المياه—4 kg
- مجموعة المستلزمات العلمية وصندوق الغداء وزجاجة المياه—5 kg
- مجموعة المستلزمات العلمية وصندوق الغداء—4 kg
- مجموعة المستلزمات العلمية وزجاجة مياه—3 kg
- صندوق الغداء وزجاجة المياه—3 kg

إذاً، هناك ستة من المجموعات المتوافقة المحتملة.

4 التحقق

هل الإجابة منطقية؟

تعيد أحد ذكرت كل من المجموعات المتوافقة وإجمالي كتلتها. ولم يتجاوز أي من الكتل 5 kg

إذاً، الإجابة منطقية.

Problem Solving

Solve each problem by making an organized list.

My Work!

1. Abdulraheem's bathtub is clogged. He has to empty 30 L of water by hand. Abdulraheem has a 3 L, a 4 L, and a 5 L bucket. If Abdulraheem carries two buckets each trip, what combinations of sizes allow him to empty the bathtub in exactly four trips?

   5L + 3L, 5L + 3L, 3L + 4L, and 3L + 4L

2. Manal is training for a bicycle race. Each week she rides a total distance greater than 10 km and less than or equal to 30 km. If the distance is always an even number and a multiple of 3, what are the possible distances Manal rides in one week?

   12, 18, 24, and 30 km

3. Mathematical Practice **Keep Trying** Fatheya's bulletin board is 40 cm wide. Each of her ribbons is 4 cm wide, and her photos are 12 cm wide. What combinations of ribbons and photos will fit side by side with no overlap on Fatheya's bulletin board?

   3 photos + 1 ribbon, 2 photos + 4 ribbons,

   1 photo + 7 ribbons, 0 photos + 10 ribbons

4. Fawzia buys a pack of crackers for 75 fils from the vending machine. She puts one dirham in the machine. What combination of coins, excluding 1-fils coins, could Fawzia get in change?

   1 25-fils coin; 2 10-fils coins and a 5-fils coins;

   1 10-fils coin and 3 5-fils coins; 5 5-fils coins