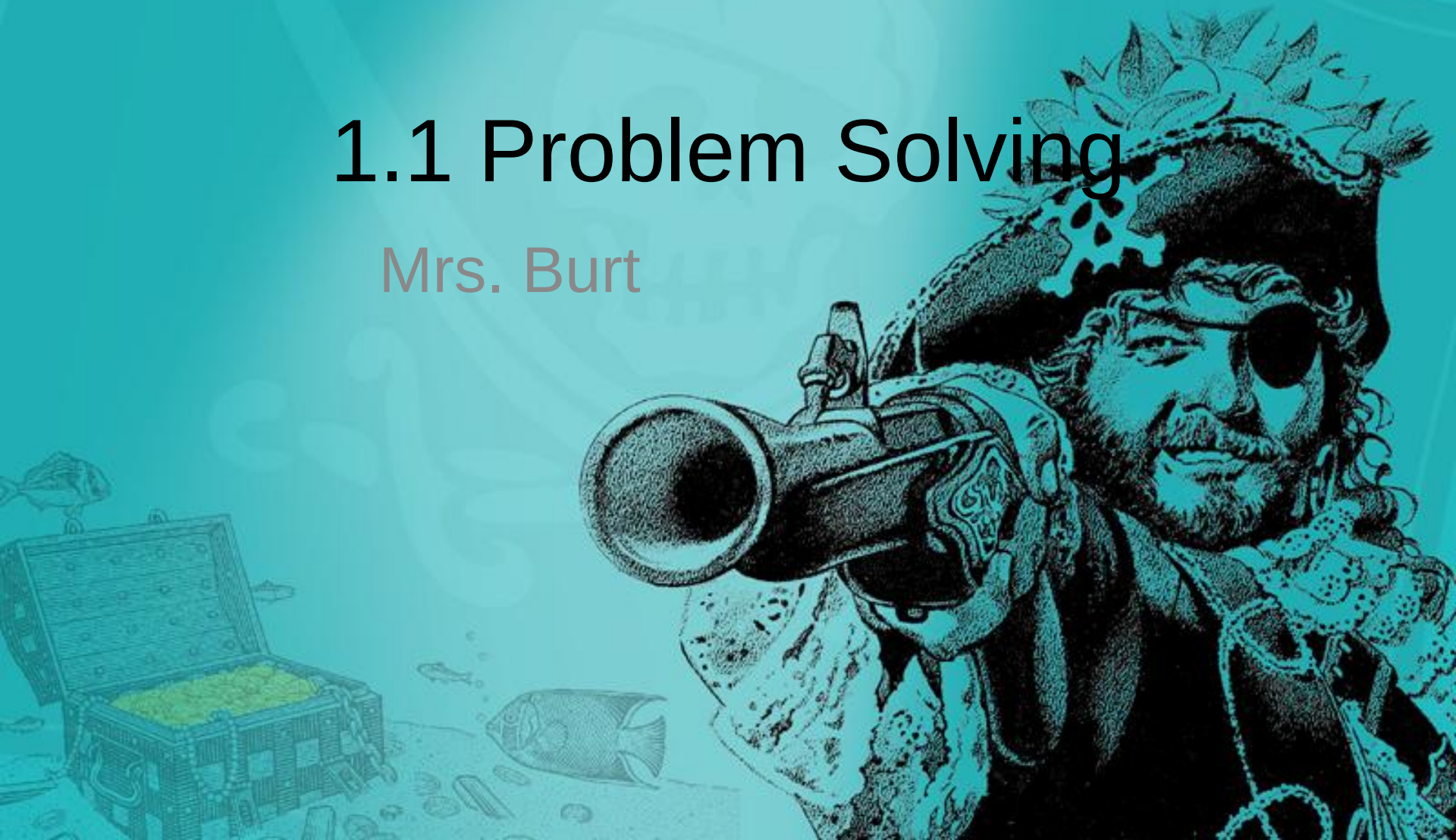
1.1 Problem Solving

Mrs. Burt



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- 2. The cellular phone plan you signed up for gives you 400 minutes a month for $35 and charges $.15 for each additional minute over 400 minutes. How long can you talk on the phone each month and stay within a budget of $45?
- **What you know:**
- The charge for 400 minutes of service
- The charge per minute over 400 minutes
- The amount you can spend.
- **Need to find out:**
- How many minutes over 400 you can talk.

p. 4 In exercise 4, state the formula that is needed to solve the problem. You do not need to solve the problem.

- 4. You invest $200 into a savings account that earns 2% simple annual interest. How long will it take to earn $50 in interest?

- I = Prt Interest = Principal(Rate)(Time)

- 6. **Sticker Collection** Your sticker collection consists of 175 stickers. Each sticker is either an animated cartoon character or an animal. There are 43 less stickers that are animated characters than stickers that are animals. Let x be the number of stickers that are animals. Which expansion correctly models the situation?

- A. $x - 43 = 175$ B. $x + (x + 43) = 175$ C. $x + (x - 43) = 175$

- 8. **Bookshelf** You installed a bookshelf on the wall to organize some of your books. The books that you absolutely want on the shelf weigh a total of 6 ¾ pounds. The bookshelf can handle no more than 9 pounds. You plan on filling the rest of the shelf with your paperbacks that weigh about 1/8 pound. Assuming you won't run out of room, how many paperback books can you add to the shelf?
- **6 ¾ + (1/8)x = 9**
- **6 ¾ - 6 ¾ + (1/8)x = 9 – 6 ¾**
- **(1/8)x = 36/4 – 27/4**
- **(1/8)x = 9/4**
- **8(1/8)x = (9/4)(8/1)**
- **x = 18**

$$\frac{9}{4} \bullet \frac{8}{1} = \frac{72}{4} = 18$$

- 10. **Banking** You are going to open a certificate of deposit (CD) that earns simple interest. One CD earns 2% annual interest on a $550 deposit for 3 years. Another CD earns 3% annual interest on a $250 deposit for 4 years. Which CD will earn more interest?

- I = Prt
- I= 550(.02)(3)
- I = 33
- I = 250(.03)(4)
- I = 30
- The first CD will earn more interest.

- 2. Your soccer team has raised $400 for cleats and shin guards. It will cost $41.50 for each of the 15 players to have a pair of cleats and shin guards. How much more money will each player have to pay to cover the cost?

- $400 + 15x = 41.50(15)$

- 4. You buy 8 gifts. Some of the gifts are CDs for $12 each and the others are DVDs for $20 each. How many CDs do you buy if you spend a total of $136?
- First question: What is the unknown?

- $12x + 20(8 – x) = 136$

- 6. The savings account in which you initially invested $250 has earned $30 simple annual interest in 5 years. What is the annual interest rate of the account?

- I = Prt
- Principal (P) = 250
- I = 30
- t = 5

- 8. **Party** You are responsible for buying the frozen lasagna for an upcoming birthday party. Each package of lasagna costs $7.99 and serves 8. You need to buy enough packages so that each person can have two servings. There will be 17 people at the party. How many packages do you need. What is the total cost for the lasagna?
- 2(17) = 34 # of servings
- 34/8 = 4.25…so you will need 5 packages
- 5(7.99) = $39.95

- 10. **Painting** You and your friend are painting a 150 foot long fence. You start at opposite ends at the same time and paint towards each other. You paint the fence at a rate of 1.75 feet per minute and your friend paints at a rate of 1.25 feet per minute.

- **A. How long will it take both of you to complete the fence?**
- $1.75x + 1.25x = 150$
- $3x = 150$
- $x = 50$ minutes
- **B. How far from your beginning point will each of you be?**
- $1.75(50) = 87.5$ feet $1.25(50) = 62.5$ feet