9.20 - Questions Handout #s 1, 2, 4, 5, 7 - 14 & 16

Key Ideas

- To solve an equation, get the variable by itself on one side of the equal sign.
- When undoing the operations performed on the variable, follow the reverse order of operations.

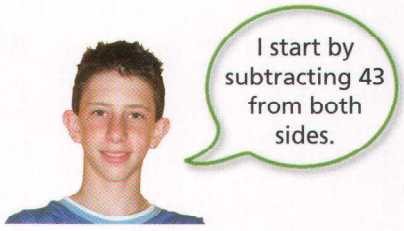
S	Subtraction
A	Addition
M	Multiplication
D	Division
E	Exponents
B	Brackets

$36 = 5c - 4$
To get c by itself, you need to undo $\times 5$ by dividing and undo $- 4$ by adding.
First perform addition. Then, perform division.

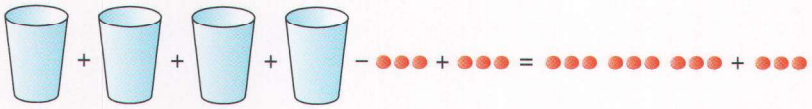
Communicate the Ideas

1. Show the steps to solve the equation $58 = 6h + 4$. Explain each step.

2. Matt and Leanne are solving the equation $75x + 43 = 643$.
Whose strategy is correct? Explain.



3. Avi is solving an equation. He models one of his steps.



a) What operation is Avi undoing? What is his reason for performing this step?
b) What will his next step be?
c) Write an equation to model the step shown.

Check Your Understanding

Practise

4. Model each equation.

a) $2c - 8 = 6$ **b)** $24 = 4v + 16$
c) $1 + 5n = 6$ **d)** $9w - 7 = 29$

5. Copy each equation.
- Circle the first operation you undo.
- Underline the second operation you undo.

a) $2n + 4 = 18$ **b)** $3x + 5 = 17$
c) $0.8y - 7 = 9.4$ **d)** $27 = 7q + 6$

For help with questions 6 to 9, refer to Example 1.

14. A camp charges schools \$100 per day to use the camp's equipment plus \$25 per day for food and sleep cabins for each student. The cost for one day can be modelled by the formula $C = 25n + 100$.

a) What do the variables C and n represent?

b) If 30 students want to go, how much will it cost per day?

c) The school raised \$300 for a one-day trip. How many students can go?

16. Bryson sees this printable coupon on an amusement park Web site. Bryson pays \$149 for two season passes and parking. What does the first season pass cost? What does the second season pass cost?

Adventure Mountain
Amusement Park

Buy one season pass,and get a second season pass for half price,plus pay only \$ 20 for parking. No tax.

7. Model and solve each equation. Check your solution.

a) $17 = 4k - 3$

b) $29 = 12n + 5$

c) $6x + 7 = 25$

d) $14 = 4n + 2$

8. Solve each equation. Verify your solution.

a) $9 + 5w = 49$

b) $1 + 16.2x = 49.6$

c) $23 = 10y - 7$

d) $0.9 = 0.7f - 1.2$

9. Solve each equation. Verify your solution.

a) $4.5k + 3 = 21$

b) $16y - 8 = 113$

c) $139 = 9x - 14$

d) $1.3v + 19 = 45$

For help with questions 10 and 11, refer to Example 2.

10. HTAM radio holds a Guess-the-Band contest. The radio station gives away three CDs for every correct answer, plus one CD just for being on the air. Leila got 10 CDs.

a) Write an equation to model Leila's CDs.

b) Solve your equation to find how many correct answers she gave.

11. A clothing store is having a "Start the Summer!" sale. Nora pays \$37 for two tank tops and a pair of sunglasses.

a) Model Nora's purchase with an equation.

b) Solve the equation to find the price of one tank top.

Apply

12. Steve is saving for a ski vacation that costs \$500. If he triples his savings, he will still need \$35. This can be modelled as $3s + 35 = 500$, where s represents his savings.

a) Explain how $3s + 35 = 500$ models Steve's savings.

b) How much money has Steve saved so far?

c) What other strategy can you use to find Steve's savings?

13. The total cost of heating a house using solar energy can be modelled with the formula $C = 200n + 9000$, where C represents the cost, in dollars, and n represents the number of years that the solar panel has been in use.

a) After how many years will the cost be \$10 600?

b) After how many years will the cost be \$13 000?