Student Instruction Sheet: Unit 1 Lesson 1

Solving Equations Part 2

Suggested time: 75 minutes

What's important in this lesson:
In this lesson you will learn how to solve harder equations which involve brackets and fractions.

Complete these steps:

1. Read through the lesson portion of the package independently.
2. Complete any of the examples in the lesson.
3. Check your lesson answer with the lesson key your teacher has.
4. Seek assistance from the teacher as needed. If you have any questions about the examples.
5. Complete the 'Assessment and Evaluation' and hand-in for evaluation. Be sure to ask the teacher for any assistance when you are experiencing any difficulty.

Hand-in the following to your teacher:

1. The 'Student Handout'.
2. Assessment and Evaluation Sheet

Questions for the teacher:

Student Handout: Unit 1 Lesson 1 Part 2

In each of the following examples we will be solving for the unknown. The unknown is the variable in each expression.

Examples:

1. $3(d+8)=3$ - remove the bracket before we collect like terms
   - multiply all terms in the bracket by the number in front of the bracket

   $3d+24=3$ - collect all like terms.

   $3d+24-24=3-24$

   $3d=-21$ - divide both sides of the equation by the numerical coefficient.

   $$\frac{3d}{3}=\frac{-21}{3}$$

   $d=-7$

2. $3(n+1)+11=9-2n$

   $3n+3+11=9-2n$ - multiple all terms in the bracket by 3.

   - do you remember what is next to happen?

   - are you collecting like terms?

   $n=$

Student Handout: Unit 1 Lesson 1 Part 2

3. $\frac{5x}{6} = 20$ - need to get rid of the fraction.

- isolate the variable by doing the opposite operation
- i.e. multiply both sides of the equation with what is in the denominator

$\frac{5x}{6} \times 6 = 20 \times 6$

$\frac{30x}{6} = 120$ - simplify the left side of the equation

5x=120 - do you remember our next step?

- divide both sides of the equations by 5.

x=24

4. $\frac{y}{2} + 5 = -2$ - collect like terms first

$\frac{y}{2} + 5 - 5 = -2 - 5$

$\frac{y}{2} = -7$ - multiply both sides of the equation by 2.

$\frac{y}{2} \times 2 = -7 \times 2$

$\frac{2y}{2} = -14$ - what's next?

y=

Complete the following questions for practice.

1. Solve

a) $3(x+2)=24$

b) $5(k-3)=10$

c) $10=2(3x-4)$

d) $3(p+2)-1=5$

e) $\frac{3x}{4}=12$

f) $\frac{m}{2}+3=-4$

2. Solve and check.

a) $4(a+1)=2(a+10)$

b) $5(a-2)-3=3(a+1)$

Assessment and Evaluation: Unit 1 Lesson Part 2

For each question below solve for the unknown.

1. $2(x-3)=3x+7$

2. $-8a+2=-2(a+5)$

3. $-2(h-3)=-h+3(h+6)$

4. $\frac{1y}{3}=4$

5. $\frac{-2y}{5}=4$

6. $\frac{2y}{3}+3=1$