

ACC Algebra: Unit 1A Quiz 1A Practice

Name Key
Period _____ Date _____

1. Evaluate $4(x+5)^3 - 2x$, when $x = -3$

$$\begin{aligned} &4(-3+5)^3 - 2(-3) \\ &4(2)^3 - 2(-3) \\ &4(8) - 2(-3) \\ &32 + 6 = \boxed{38} \end{aligned}$$

2. Solve $4 + \frac{3(x-3)}{2} = 10$

$$\begin{aligned} (2) \cdot \frac{3(x-3)}{2} &= 6 \cdot (2) \\ 3x - 9 &= 12 \\ 3x &= 21 \\ \boxed{x = 7} \end{aligned}$$

3. Complete each proof.

a.	Statement	Reason
	$4(x+2) - 14 = 2x$	Given
	$4x+8 - 14 = 2x$	Distributive Prop.
	$4x - 6 = 2x$	Like Terms
	$-6 = -2x$	Sub. Prop
	$3 = x$	Division Prop.
	$x = 3$	Symmetric Prop

b.	Statement	Reason
	$\frac{6-3x}{4} = 5$	Given
	$6 - 3x = 20$	Multipl.
	$-3x = 14$	Subtraction Prop.
	$x = -14/3$	Div. Prop.

4. Given $6x - 8(x-5) = 2x...$

a. Which of the following is a correct *statement*, based on the given above? (circle one)

$\boxed{6x - 8x + 40 = 2x}$ or $6x - 8x - 40 = 2x$

What is the *reason* this statement is true?

Distribution Prop.

b. Which of the following is a correct *statement*, based on the given above? (circle one)

$8(x-5) - 6x = 2x$ or $\boxed{2x = 6x - 8(x-5)}$

What is the *reason* this statement is true?

Symmetric Prop

c. Which of the following is a correct *statement*, based on the given above? (circle one)

$\boxed{3x - 4(x-5) = x}$ or $3x - 8(x-5) = x$

What is the *reason* this statement is true?

Division Prop.

You MUST write an equation and solve your equation to answer the question. SHOW ALL WORK. Answers reached through guess-and-check will receive no credit.

5. Word Problems: Basic Translating.

- a. A number is increased by 5, then tripled. The result is 22. Find the number.

Equation: $3(x+5) = 22$
 $3x + 15 = 22$
 $3x = 7$
 Solution: $x = 7/3$

- b. 15 less than a number is two more than half that number. Find the number.

Equation: $x - 15 = 1/2x + 2$
 $1/2x - 15 = 2$
 $1/2x = 17$
 Solution: $x = 34$

6. Word Problems: Consecutive Integers.

- a. The sum of seven consec. odd integers is 189. Find the middle number in this list.

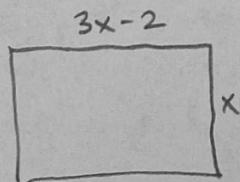
Equation: $x + (x+2) + (x+4) + (x+6) + (x+8) + (x+10) + (x+12) = 189$
 $7x + 42 = 189$
 $7x = 147$
 $x = 21$
 Solution: 21, 23, 25, 27, 29, 31, 33

- b. Find a set of five consec. integers so the sum of the first and twice the last is 200.

Equation: $x + 2(x+4) = 200$
 $x + 2x + 8 = 200$
 $3x + 8 = 200$
 $3x = 192$
 $x = 64$
 Solution: 64, 65, 66, 67, 68

7. Geometry Word Problems: Geometry and General.

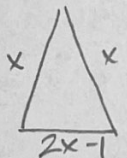
- a. A rectangle's length is 2 inches shorter than three times its width. The rectangle's perimeter is 44 inches. Find the rectangle's length and width.



Equation: $2x + 2(3x-2) = 44$
 $2x + 6x - 4 = 44$
 $8x = 48$
 $x = 6$

Solution: $w = 6 \text{ in}$
 $l = 16 \text{ in}$

- b. An isosceles triangle has a perimeter of 19 feet. The base is one less than twice as long as a leg. Find all three side lengths.



Equation: $2x + 2x - 1 = 19$
 $4x - 1 = 19$
 $4x = 20$
 $x = 5$

Solution: 5 ft, 5 ft, 9 ft

8. Interpreting Expressions in Context

The band boosters sold brownies and cupcakes at a home football game to raise money for a trip. Brownies (B) sold for \$1.5 each and cupcakes sold for \$2 each. Twenty more cupcakes were sold than brownies. Explain what each expression means in context of the problem.

- a. $B + (B + 20)$
 ↑ ↑
 Brownies Cupcakes
 Total # of items sold.

- b. $1.5B + 2(B + 20)$
 Total amount of money earned