PRACTICE DRILL 8—QUANT COMP (MIDDLE AND UPPER LEVELS ONLY)

Remember to time yourself during this drill!

(A) means that column A is always greater
(B) means that column B is always greater
(C) means that column A is always equal to column B
(D) means that A, B, or C are not always true

	<u>Column A</u>	<u>Column B</u>

$x > 1$

1.	x	x^2

b is an integer and $-1 < b < 1$.

2.	$\dfrac{b}{2}$	$\dfrac{b}{8}$

3.	p gallons	m quarts

x is a positive integer.

4.	$\dfrac{x}{4}$	$\dfrac{x}{5}$

w is an integer less than 4.

p is an integer greater than 10.

5.	pw	w

6.	$4c + 6$	$3c + 12$

Practice Drill 8—Quant Comp

1.   **B**

   Since there are variables in the columns, plug in a number. Pay attention to the restriction given: plug in a number greater than 1 for x. Let $x = 4$. Column A is equal to 4, and column B is equal to 4^2, or 16. Since column B is greater, eliminate (A) and (C). Try a different number to see if column A could be greater or if the quantities could be equal. Since $x > 1$, x cannot be negative, zero, or one. Try a very large number. $1{,}000^2$ is much larger than 1,000, so column B is still greater. You could also try a decimal, like 2.5. In this case, column B is still greater since $2.5^2 = 6.25$, which is greater than 2.5. Therefore, since column B is always greater, the correct answer is (B).

2.   **C**

   Read the question carefully: *b is an integer and −1 < b < 1*. There is only one integer between −1 and 1. Therefore, b must be 0. Plug 0 in for b into each of the columns. Column A is $\frac{0}{2} = 0$. Column B is $\frac{0}{8} = 0$. The quantities are equal, so (C) is the correct answer.

3.   **D**

   Since there are variables in the columns, plug in values for p and m. For instance, let $p = 16$ and $m = 3$. Since it takes 4 quarts to make one gallon, column B is less than 1 gallon while column A is 16 gallons. This makes column A greater. However, the question does not state anything about requirements for these numbers, and the values could easily be reversed, that $p = 3$ and $m = 16$. The 16 quarts in column B is equal to 4 gallons, which is greater than the 3 gallons in column A. Since this could be true as well, it cannot be determined which quantity is larger. The correct answer is (D).

4.   **A**

   Since there are variables in the columns, plug in a number. Pay attention to the restriction given: if x must be a positive integer, plug in a positive integer for x. For example, let $x = 3$. Column A is $\frac{3}{4}$ while column B is $\frac{3}{5}$. If you're not sure which value is greater, draw a picture. You can also use Bowtie to compare fractions. Column A becomes $\frac{15}{20}$, and column B becomes $\frac{12}{20}$. Thus, column A is greater. Eliminate (B) and (C). Try plugging in another value for x to see if another outcome is possible. Remember the restriction given, so x cannot be negative or zero, so try a large integer. Make $x = 100$. Column A is $\frac{100}{4} = 25$, and column B is $\frac{100}{5} = 20$. Column A is still greater. You could also try $x = 1$, but you will get the same result. Column A will be greater since $\frac{1}{4} = 0.25$ is greater than $\frac{1}{5} = 0.20$. The correct answer is (A).

5.   **D**

Since there are variables in the columns, plug in values for p and w, according to the information given: *w is an integer less than 4,* so let $w = 3$. You are also given that *p is an integer greater than 10*, so let $p = 11$. Therefore, column A is $(3)(11) = 33$, while column B is equal to 3. In this case, column A is greater. Eliminate (B) and (C). Now, try plugging in different numbers to see if another outcome is possible. Let $w = 0$ and $p = 12$. In column A, $(12)(0) = 0$. This is equal to column B since $w = 0$. Since column A isn't always greater nor are the two columns always equal, the correct answer is (D).

6.   **D**

Since there are variables in the columns, plug in a value for c. Let $c = 2$. In column A, $4(2) + 6 = 8 + 6 = 14$. Do the same for column B: $3(2) + 12 = 6 + 12 = 18$. In this case, column B is greater, so eliminate (A) and (C). Now, try a different number, perhaps a negative number. Let $c = -10$. Now, column A will read $4(-10) + 6 = -40 + 6 = -34$. Do the same to column B: $3(-10) + 12 = -30 + 12 = -18$. In this case, $-18 > -34$, so column A is now greater. Since neither column is always greater, the correct answer is (D).