

UNIT REVIEW

READ ME

The purpose of this review package is to diagnose areas that you need more practice with before the test.

1. Review your notes before trying the questions in this package.
2. Answer the questions on this handout. Treat it like a test. DO NOT look at the answers until you have finished all of the questions.
3. Use the answers provided to check and see how you did.
4. Use the additional review questions provided (Unit Review II and other assigned course pack and textbook questions).

1. Solve each of the following equations. **SAMDEB**

a) $5x + 3 = 13$
 $\begin{array}{r} 5x + 3 = 13 \\ -3 \quad -3 \\ \hline 5x = 10 \\ \hline x = 2 \end{array}$
 SA { 1) eliminate +3 by subtracting 3 from both sides
 MD { 2) eliminate 5 by dividing both sides by 5
 $x = 2$

b) $5 - 4x = 17$
 $\begin{array}{r} 5 - 4x = 17 \\ -5 \quad -5 \\ \hline -4x + 5 = 17 \\ -5 \quad -5 \\ \hline -4x = 12 \\ \hline x = -3 \end{array}$
 rearrange
 SA { 1) eliminate +5 by subtracting 5 from both sides
 MD { 2) eliminate -4 by dividing both sides by -4
 $x = -3$

c) $2x^2 - 7 = 193$
 $\begin{array}{r} 2x^2 - 7 = 193 \\ +7 \quad +7 \\ \hline 2x^2 = 200 \\ \hline \frac{2x^2}{2} = \frac{200}{2} \\ \hline x^2 = 100 \\ \hline x = 10 \end{array}$
SAMDEB
 SA 1) eliminate -7 by adding 7 to both sides
 MD 2) divide both sides by 2
 E 3) square root both sides

d) $15y - 6 = 9 + 10y$
 $\begin{array}{r} 15y - 6 = 9 + 10y \\ -10y \quad -10y \\ \hline 5y - 6 = 9 \\ +6 \quad +6 \\ \hline 5y = 15 \\ \hline y = 3 \end{array}$
 1) eliminate 10y from right side by subtracting 10y from both sides
 2) eliminate -6 by adding 6 to both sides
 3) divide both sides by 5

e) $4(m + 3) + 2(m - 3) = 3(m - 2)$
 $\begin{array}{r} 4(m + 3) + 2(m - 3) = 3(m - 2) \\ 4m + 12 + 2m - 6 = 3m - 6 \\ 4m + 2m + 12 - 6 = 3m - 6 \\ 6m + 6 = 3m - 6 \\ -3m \quad -3m \\ \hline 3m + 6 = -6 \\ -6 \quad -6 \\ \hline 3m = -12 \\ \hline m = -4 \end{array}$
 1) apply distributive law
 2) rearrange left side
 3) collect like terms
 4) eliminate 3m from RS
 5) eliminate +6 from LS
 6) divide both sides by 3
 $m = -4$

f) $7(2x^2 + 3x) - 1(21x - 5) - 3(4x^2 + 7) = 2$
 $\begin{array}{r} 7(2x^2 + 3x) - 1(21x - 5) - 3(4x^2 + 7) = 2 \\ 14x^2 + 21x - 21x + 5 - 12x^2 - 21 = 2 \\ 14x^2 - 12x^2 + 21x - 21x + 5 - 21 = 2 \\ 2x^2 - 16 = 2 \\ +16 \quad +16 \\ \hline 2x^2 = 18 \\ \hline \frac{2x^2}{2} = \frac{18}{2} \\ \hline x^2 = 9 \\ \hline x = 3 \end{array}$
 1) apply distributive law
 2) rearrange left side
 3) collect like terms
 4) eliminate -16
 5) divide both sides by 2
 6) sq root both sides
 $x = 3$

2, 4, 6, 8, 10, 12
3, 6, 9, 12
4, 8, 12
LCD = 12

<p>g) $12 \cdot \frac{1}{2} + 12 \cdot \frac{(x-5)}{3} = 12 \cdot \frac{(x+4)}{4}$</p> <p>$6 \cdot 1 + 4(x-5) = 3(x+4)$</p> <p>$6 + 4x - 20 = 3x + 12$</p> <p>$4x - 14 = 3x + 12$</p> <p>$-3x \quad -3x$</p> <p>$1x - 14 = 12$</p> <p>$+14 \quad +14$</p> <p>$x = 26$</p>	<p>h) $12 \cdot \frac{1}{4}(3y-2) = 12 \cdot \frac{2}{3}(y+1)$</p> <p>$3 \cdot 1(3y-2) = 4 \cdot 2(y+1)$</p> <p>$3(3y-2) = 8(y+1)$</p> <p>$9y - 6 = 8y + 1$</p> <p>$-8y \quad -8y$</p> <p>$1y - 6 = 1$</p> <p>$+6 \quad +6$</p> <p>$y = 7$</p>
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2. Samwise Gamgee solved two different equations, shown below:

a) Check his answers to see if he answered the questions correctly.

Question #1

$$5x + 4 = 12 - 3x$$

$$2x + 4 = 12$$

$$2x = 8$$

$$x = 4$$

Question #2

$$\frac{x}{3} + 6 = 9$$

$$\frac{x}{3} = 3$$

$$x = 9$$

Left Side	Right Side
$5x + 4$	$12 - 3x$
$= 5(4) + 4$	$= 12 - 3(4)$
$= 20 + 4$	$= 12 - 12$
$= 24$	$= 0$

LS \neq RS \therefore WRONG

Left Side	Right Side
$\frac{x}{3} + 6$	9
$= \frac{9}{3} + 6$	
$= 3 + 6$	
$= 9$	

LS = RS

b) If either of his answers is incorrect, look at his work and circle where he made his error. Explain, in words, what he did incorrectly.

3. Solve the following equation. Describe, **in words**, each step you used to solve the equation.

$$7b + 2b = -5 - 4$$

4. Determine the value of **A** in the equation $5x + 7 + 2x + A = 100$, such that the solution to the equation is $x = 11$.

5. The cost of renting a bike at Centre Island in Toronto is represented by the equation $C = 2n + 10$, where C is the cost of renting a bike, and n is the number of hours of bike rental.

a) How much does it cost to rent a bike for 2 hours ?	b) How long can you rent the bike for if it costs \$30?
c) Write a simplified equation to show the cost of renting 2 bikes.	d) You and a friend want to spend the day at Centre Island. Together, you have a total of \$50 to spend for the day. If you each have to pay \$8 for the ferry ride (round trip), how long can you afford to rent bikes for?

6. The total cost (T) for a group to go to an amusement park and buy an all-inclusive ticket for all the rides is given by $T = 25A + 15C + 10(A + C)$, where A is the number of adults, and C is the number of children.

a) What is the cost for a family with one adult and three children to go to the park?

b) If a family with two adults goes to the park and pays \$195, how many children are there?

c) A teacher plans to take his class of 25 students to the amusement park on a field trip. He is hoping to get some parent volunteers to come with them on the trip. If the bus they are taking seats 32 people, what is the maximum and minimum cost of the trip?

7. The perimeter of the garden in the diagram is 170 m. Determine the value of w and the length of each side.

