MVP Module 4 Test Review

Name: Purple

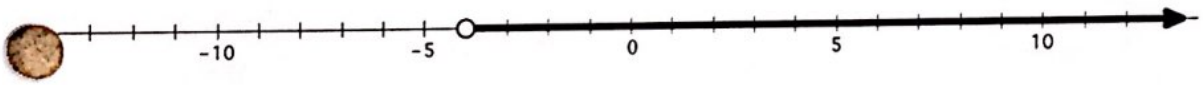
***Multiple Choice:** Choose the best answer from the choices provided.*

1. Which justification should be used for Step 2?

	$4(x-5)=-12$	Justification
Step 1	$4x-20=-12$	- Distributive Property
Step 2	$4x=8$	- A
Step 3	$x=2$	- Division Property of Equality

a. Addition Property of Equality
b. Subtraction Property of Equality
c. Multiplication Property of Equality
d. Division Property of Equality

2. Which inequality is best represented by the following number line?



a. $-3x+10\geq 22$

b. $-3x+10 \not\geq 22$

c. $-3x+10>22$

d. $-3x+10<22$

3. A plumber charges a one-time service fee of \$20 in addition to his hourly rate of \$25 per hour. If the plumber went to your house to work on your bathtub and toilet and the bill came to \$282.50, how many hours did it take him to complete the job?

a. $20+25x=282.50$, $x=15$ hours

b. $25+20x=282.50$, $x=10.5$ hours

c. $20+25x=282.50$, $x=10.5$ hours

d. $45x=282.50$, $x=6.3$ hours

$20+25h=282.5$

$-20 \quad -20$

$\frac{25h}{25}=\frac{262.5}{25}$

$h=$

$25\overline{)262.5}$ → 10.5

-25

12

-0

125

125

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4. Solve $y - 5 = -(4 - y)$ Distribute "-1"

$y - 5 = -4 + y$

$-y \quad\quad -y$

$-5 \neq -4$

A. $y = 2$

B. $y = all\ real\ numbers$

C. $y = ½$

D. *No solution*

5. Which inequality represents all of the possible solutions for $2(x - 8) \leq x - 12$

$2x - 16 \leq x - 12$

$-x \quad\quad -x$

$x - 16 \leq -12$

$+16 \quad\quad +16$

$x \leq -4$

a. $x \geq 4$

b. $x \leq -4$

c. $x \leq 4$

d. $x \leq -28$

6. Solve. $6x - 4(x + 1) = 4(x - 3) + 8$

$6x - 4x - 4 = 4x - 12 + 8$

$2x - 4 = 4x - 4$

$-2x \quad\quad -2x$

$-4 = 2x - 4$

$+4 \quad\quad +4$

$0 = 2x$

$\frac{0}{2} = \frac{2x}{2}$

$0 = x$

a. x = 4

b. x = 0

c. No Solution

d. All Real Solutions

7. What is the correct step to simplify the expression $-4j + 8 - j$

$-5j + 8$

A. Combine the -4j and the –j to get -3j

B. Combine the -4j and the –j to get -5j

C. Combine the 8 – j to get 7

D. Combine the -4j and the 8 to get 4j

8. Solve: $-4x - 5 < x$

$+4x \quad\quad +4x$

$\frac{-5}{5} < \frac{5x}{5}$

$-1 < x$, so $x > -1$

a. a possible answer would be x = -10

b. a possible answer would be x = -5

c. a possible answer would be x = -1

d. a possible answer could be x = 1

9. Which of the following is the definition of a **coefficient**? Give an example of a **coefficient**: $4x$ or $\frac{4}{3}y$

A. A number that is multiplied by a variable

B. A value that does not change (a number)

C. Terms that contain the same variables

D. A symbol representing an unknown quantity

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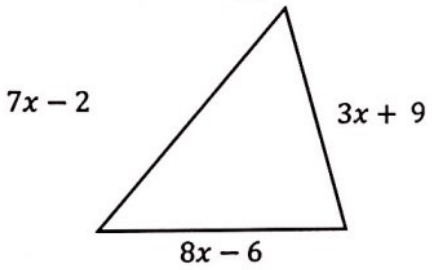
10. Which of the following is the definition of a **constant**? Give an example of a **constant**: 16 + 2x

A. A number that is multiplied by a variable
B. A value that does not change (a number)
C. Terms that contain the same variables
D. A symbol representing an unknown quantity

Short Answer: Show work that supports all solutions.

11. Each side of the triangle is represented by an expression. Find the value of x if the triangle has a perimeter of 73.



$7x-2 + 3x+9 + 8x-6 = 73$

$18x + 1 = 73$

$-1 \quad -1$

$\frac{18x}{18} = \frac{72}{18}$

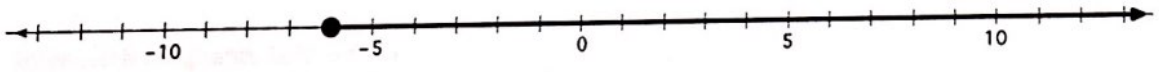
$x = 4$

3
18
× 4
72

12. You are starting a lawn mowing business to earn enough money to buy a new video game system, which costs $500. You already have $150 from last summer. You charge $9.50 per hour. Write an inequality that shows how many hours you need to work to earn *more than* $500, so you can afford controllers, games, and such.

$150 + 9.5h \geq 500$

13. Write the inequality represented by this number line:



$x \geq -6$

14. Are the following expressions equivalent? Why or why not? NO *

$\frac{4x+6}{2} + 3$ $\qquad$ $4x + 9$

$\frac{4x}{2} + \frac{6}{2} + 3$

$2x + 3 + 3 = 2x + 6$

Not Equivalent

15. Mary and Jeff both have jobs at a baseball park selling bags of peanuts. They get paid $12 per game and $1.75 for each bag of peanuts they sell. Create equations or inequalities, that when solved, would answer the following questions:

a. How many bags of peanuts does Jeff need to sell to earn $54? $12 + 1.75b = 54$

b. How many bags of peanuts does Mary need to sell to earn at least $68? $12 + 1.75b \geq 68$

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16. Jay is saving money and has two different jobs he can pick to do on Monday. The dog walking job would earn him $10 plus $3 per hour. The ice cream truck driver job would earn him a rate of $8 per hour. Write an equation that represents when he would make the same amount of money from whichever job he chooses to do if he works for x hours.

$10 + 3h = 8h$

17. In each of the equations below, rewrite the equation, solving for the indicated variable.

a) If F denotes a temperature in degrees Fahrenheit and C is the same temperature measured in degrees Celsius, then F and C are related by this equation. Rewrite this expression to solve for C in terms of F.

$F = 95C + 32$.

$-32 \quad -32$

$\frac{F-32}{95} = \frac{95C}{95}$

$\frac{F-32}{95} = C$ → $C = \frac{F-32}{95}$

b) The volume V of a cylinder of radius r is given below. Solve for r.

$V = \pi r^2 h$

$\frac{V}{\pi h} = \frac{\pi r^2 h}{\pi h}$

$\sqrt{\frac{V}{\pi h}} = \sqrt{r^2}$ → $r = \sqrt{\frac{V}{\pi h}}$

Solve each inequality below for x

18. $2y + 4x \leq 48$

$-2y \quad -2y$

$\frac{4x}{4} \leq \frac{48-2y}{4}$

$x \leq \frac{48}{4} - \frac{2y}{4}$

$x \leq 12 - \frac{1}{2}y$

19. $(-3)\frac{x}{-3} > -\frac{10}{9}(-3)$

$x < +\frac{30}{9}$

$x < \frac{10}{3}$ or $x < 3\frac{1}{3}$

20. $\frac{2}{3}x - \frac{1}{2}(4x-1) \geq x + 2(x-3)$

$\frac{2}{3}x - 2x + \frac{1}{2} \geq x + 2x - 6$

$-1\frac{1}{3}x + \frac{1}{2} \geq 3x - 6$

$+1\frac{1}{3}x \quad +1\frac{1}{3}x$

$\frac{1}{2} \geq 4\frac{1}{3}x - 6$

$+6 \quad +6$

$6\frac{1}{2} \geq 4\frac{1}{3}x$

$6\frac{1}{2} \div 4\frac{1}{3}$

$\frac{13}{2} \div \frac{13}{3}$

$\frac{13}{2} \times \frac{3}{13} = \frac{3}{2}$

$\frac{6\frac{1}{2}}{4\frac{1}{3}} \geq \frac{4\frac{1}{3}x}{4\frac{1}{3}}$

$\frac{3}{2} \geq x$

$x \leq \frac{3}{2}$