Solutions

MAT 0024C
Practice for the Exam
Chapter 2 (V1)
Carson

Name: _____
Date: _____
Section: _____

Solve each equation:

1. $-7y - 6 + 9y = 6$

$2y - 6 = 6$
$+6 \quad +6$
$2y = 12$
$y = 6$

2. $4x - 5 = 3x + 17$

$-3x \quad -3x$
$x - 5 = 17$
$+5 \quad 5$
$x = 22$

3. $7(7x + 5) = 6(8x + 3)$

$49x + 35 = 48x + 18$
$-48x \quad -48x$
$x + 35 = 18$
$-35 \quad -35$
$x = -17$

4. $2(x - 3) + 7x = 12$

$2x - 6 + 7x = 12$
$9x - 6 = 12$
$+6 \quad +6$
$9x = 18$
$x = 2$

5. $12x - 7 - 11x = 6 + (-3)$

$x - 7 = 3$
$+7 \quad 7$
$x = 10$

6. $3(y + 5) = 8y$

$3y + 15 = 8y$
$-3y \quad -3y$
$15 = 5y$
$3 = y$

7. $3(5x - 7) = 2(7x - 3)$

$15x - 21 = 14x - 6$
$-14x \quad -14x$
$x - 21 = -6$
$+21 \quad +21$
$x = 15$

8. $9 + 2(7x - 4) = -27$

$9 + 14x - 8 = -27$
$14x + 1 = -27$
$-1 \quad -1$
$14x = -28$
$x = -2$

9. $\frac{2}{3}(x-4)-3=\frac{x}{2}-4$

lcd 6

$4(x-4)-3(6)=3x-4(6)$

$4x-16-18=3x-24$

$4x-34=3x-24$

$x=10$

10. $\frac{3x}{5}-4=\frac{x}{3}+\frac{3}{5}$

lcd 15

$9x-4(15)=5x+9$

$9x-60=5x+9$

$-5x \quad -5x$

$4x-60=9$

$4x=69$

$x=\frac{69}{4}$

11. $5-4(x+3)-2(2x-1)=4x+8$

$5-4x-12-4x+2=4x+8$

$-8x-5=4x+8$

$+8x \quad +8x$

$-13=12x \quad -5=12x+8$

$-8 \quad -8$

$\frac{-13}{12}=x$

12. $3(x-4)=3x-10$

$3x-12=3x-10$

$-12=-10$

no solution

contradiction

13. $4(x+6)=4x+24$

$4x+24=4x+24$

all real numbers

(identity)

14. $\frac{5}{2}x-6=\frac{1}{7}(x+3)+1$

lcd 14

$14\cdot\frac{5}{2}x-6\cdot14=14\cdot\frac{1}{7}(x+3)+14(1)$

$35x-84=2(x+3)+14$

$35x-84=2x+6+14$

$35x-84=2x+20$

$-2x \quad -2x$

$33x-84=20$

$+84 \quad 84$

$33x=104$

$x=\frac{104}{33}$

Write each as an equation, using "x" for a number:
(Do not solve!)

15. The sum of four times a number and twelve is thirty four.

$4x+12=34$

16. Three times the difference between a number and eight is equal to the quotient of the number and four.

$3(x-8) = \frac{x}{4}$

17. The sum of three consecutive odd integers is 105. Find the integers.

33	x
35	x+2
37	x+4

1st # + 2nd # + 3rd # = 105

$x + (x+2) + (x+4) = 105$

$3x + 6 = 105$

$3x = 99$

$x = 33$

18. Let $V = 2\pi rh + 2\pi r^2$

a) Solve for h

$V = 2\pi rh + 2\pi r^2$

$\frac{V - 2\pi r^2}{2\pi r} = \frac{2\pi rh}{2\pi r}$

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

$\boxed{\frac{V}{2\pi r} - r = h}$

b) Find V when r = 1 and h = 3

$V = 2\pi rh + 2\pi r^2$

$V = 2\pi(1)(3) + 2\pi(1)^2$

$V = 6\pi + 2\pi = \boxed{8\pi}$

19. Let $3x + 2y = 6$

a) Solve for y

$3x + 2y = 6$

$2y = 6 - 3x$

$y = \frac{6}{2} - \frac{3x}{2}$

$\boxed{y = 3 - \frac{3x}{2}}$

b) Find y when x = 4

$y = 3 - \frac{3(4)}{2} = 3 - \frac{12}{2} = 3 - 6 = \boxed{-3}$

20. Solve $P = 2L + 2W$ for L

$P - 2w = 2L$

$\frac{P}{2} - \frac{2w}{2} = \frac{2L}{2}$

$\boxed{\frac{P}{2} - w = L}$

21. Solve $C = 4xy + yd - 3k$ for d

$C - 4xy + 3k = yd$

$\frac{C}{y} - \frac{4xy}{y} + \frac{3k}{y} = \frac{yd}{y}$

$\boxed{\frac{C}{y} - 4x + \frac{3k}{y} = d}$

Solve and graph (on a number line) each of the following:
Write your answer in interval notation.

22. $4(x + 1) \leq 8x - 8 - 4$

$4x + 4 \leq 8x - 12$

$-8x \quad -8x$

$-4x + 4 \leq -12$

$-4 \quad -4$

$-4x \leq -16$

$\boxed{x \geq 4}$

$[4, \infty)$

23. $10 < 5x + 5 < 20$

$-5 \quad -5 \quad -5$

$5 < 5x < 15$

$\frac{5}{5} < \frac{5x}{5} < \frac{15}{5}$

$\boxed{1 < x < 3}$

$(1, 3)$

24. $(6x - 2) - 2(4x + 1) \geq 0$

$6x - 2 - 8x - 2 \geq 0$

$-2x - 4 \geq 0$

$-2x \geq 4$

$\boxed{x \leq -2}$

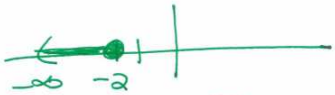
$(-\infty, -2]$

25. $6x + 5 \leq -7$

$-5 \quad -5$

$6x \leq -12$

$\boxed{x \leq -2}$



$(-\infty, -2]$