Name _____ Class _____ Date _____

Chapter Test — Form B

Chapter 1

1. Graph each number on a number line.

a. -4 **b.** $\sqrt{4}$ **c.** $-\frac{3}{4}$ **d.** $3\frac{1}{3}$ **e.** -5.5 **f.** $-\sqrt{7}$

2. What properties of real numbers are used in each step of the following simplification?

$5 + [x + (-5)] = 5 + [(-5) + x]$ **a.** _____

$= [5 + (-5)] + x$ **b.** _____

$= 0 + x$ **c.** _____

$= x$ **d.** _____

Simplify.

3. $|2 - 7| + 3$

4. $-\frac{3}{2}|-5 + 9|$

Evaluate each expression for the given value of the variable.

5. $3r^2 - 5r + 7; r = 3$

6. $\frac{5(y - 2) + (y + 1)}{2y + 1}; y = -2$

Simplify by combining like terms.

7. $7x^2 + 3y - 4x^2 + y$

8. $3(a + 5b) - \frac{7}{2}(2b - a)$

9. The expression $21.95 + 0.15x$ models the daily cost of renting a car. In the expression, x represents the number of miles the car is driven. Find the cost of renting a car for a day when the car is driven 100 miles.

Solve each equation.

10. $3m - 15 = 2m - 19$

11. $4h + 4.9 = 7h - 1.7$

12. $4(3p - 2) = 28$

13. $3\left(5v + \frac{1}{3}\right) - 4 = 7$

14. $5(z - 4) + 13 = 3(z + 7)$

15. $2\left(x - \frac{1}{5}\right) = 3\left(x + \frac{1}{5}\right) + 8x - 1$

Solve each equation for x. State any restrictions on the variables.

16. $\frac{x + 5}{2} + x = b$

17. $xy - 2x = 3y$

Name _____ Class _____ Date _____

Chapter Test (continued) Form B

Chapter 1

Solve each formula for the indicated variable.

18. $x_3 = (1 - p)x_1 + px_2$, for x_1

19. $V = \pi r^2 h + r^2 h$, for h

Write an equation to solve each problem.

20. The sides of a triangle are in the ratio 3 : 4 : 6. What is the length of each side if the perimeter is 104 cm?

21. Two brothers are saving money to buy a new game system. Their combined savings is $85. One brother has $22 more than the other. How much has each brother saved?

Solve each inequality. Graph the solutions.

22. $2c + 5 \leq -1$

23. $4 - 3x > 10$

24. $5k - \left(\frac{7}{2} - 4k\right) < 7\left(k + \frac{1}{2}\right)$

25. $2y + 3 \geq 3y - 5$

Solve each compound inequality. Graph the solutions.

26. $2x - 3 < -5$ or $3x - 10 > x$

27. $-2t \leq 10$ and $-3t > -6$

28. $-4 \leq 3 - 2x \leq 4$

29. $-3 < 2x - 3 < 5$

Solve each equation. Check for extraneous solutions.

30. $|2x - 9| = 1$

31. $|2y + 5| = 3y$

Solve each inequality. Graph the solutions.

32. $|4z - 3| \geq 5$

33. $6|5x - 2| - 1 < 17$

34. The temperature T of a body of water is at least 59°F and at most 73°F. Write an absolute value inequality and a compound inequality for the temperature of the water.

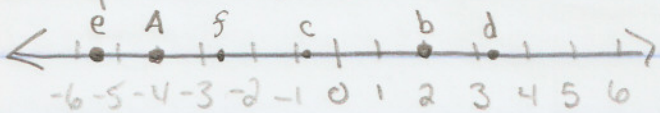
Suppose a number is chosen at random from the sample space {3, 4, 5, 6, 7}. Find each probability.

35. P(less than 3)

36. P(even)

37. For the last 80 orders processed, 56 customers paid by credit card and 24 paid by check. What is the experimental probability that the next customer will pay by credit card?

Chapter 1 Practice Test Solutions

(1) 

(2) a) Commutative property of addition (two #s changed place)
b) associative property of addition (arranged parentheses)
c) Simplify / Inverse Property of addition
d) Identity property of addition

(3) 8

(4) -6

(5) $3\cdot(3)^2 - 5(3) + 7 \quad 27 - 15 + 7 = \boxed{19}$

(6) $\dfrac{5(-2-2)+(-2+1)}{2(-2)+1} = \dfrac{5(-4)+(-1)}{-3} = \dfrac{-20+(-1)}{-3} = \dfrac{-21}{-3} = \boxed{7}$

(7) $3x^2 + 4y$

(8) $3a + 15b - 7b + \frac{1}{2}a \qquad \boxed{6.5a + 8b}$

(9) $21.95 + .15(100) = 21.95 + 15.00 = \boxed{\$36.95}$

(10) $3m - 15 = 2m - 19$

$\boxed{m = -4}$

(11) $4h + 4.9 = 7h - 1.7$

$6.6 = 3h$

$\boxed{h = 2.2}$

(12) $4(3p-2) = 28$

$12p - 8 = 28$

$12p = 36$

$\boxed{p = 3}$

(13) $3(5v + \frac{1}{3}) - 4 = 7$

$15v + 1 - 4 = 7$

$15v - 3 = 7$

$15v = 10$

$\boxed{v = \frac{10}{15} = \frac{2}{3}}$

(14) $5(z-4)+13=3(z+7)$

$5z-20+13=3z+21$

$5z-7=3z+21$

$2z=28$

$\boxed{z=14}$

(15) $2(x-\frac{1}{5})=3(x+\frac{1}{5})+8x-1$

$2x-\frac{2}{5}=3x+\frac{3}{5}+8x-1$

$2x-\frac{2}{5}=11x-\frac{2}{5}$

$2x=11x$

$-9x=0$ $\boxed{x=0}$

(16) $\frac{x+5}{2}+x=b$

$x+5+2x=2b$

$x+2x=2b-5$

$3x=2b-5$

$\boxed{x=\frac{2b-5}{3}}$

(17) $xy-2x=3y$

$x(y-2)=3y$

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

(18) $x_3=(1-p)x_1+px_2$

$x_3-px_2=(1-p)x_1$

$\boxed{\frac{x_3-px_2}{(1-p)}=x_1}$

(19) $V=\pi r^2h+r^2h$

$V=h(\pi r^2+r^2)$

$\boxed{\frac{V}{(\pi r^2+r^2)}=h}$

(20) $3x+4x+6x=104$

$13x=104$

$\boxed{x=8 \quad 24, 32, 48 \text{ cm}}$

(21) $x+(x+22)=85$

$2x+22=85$

$2x=63$

$x=\$31.50$ $\boxed{\$31.50 \text{ and } \$53.50}$

(22) $2c+5\leq -1$

$2c\leq -6$

$\boxed{c\leq -3}$ ← ●

-3

(23) $4-3x>10$

$-3x>6$

$\boxed{x<-2}$ ← ○

-2

(24) $5k-3.5+4k<7k+3.5$

$9k-3.5<7k+3.5$

$2k<7$

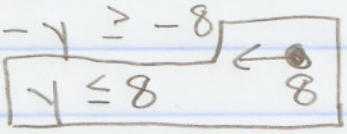
$\boxed{k<3.5}$ ← ○

3.5

(25) $2y + 3 \geq 3y - 5$

$-y \geq -8$

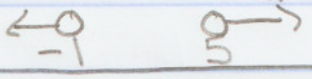
$y \leq 8$



(26) $2x - 3 < -5$ or $3x - 10 > x$

$2x < -2$ $\quad 2x > 10$

$x < -1$ $\quad x > 5$



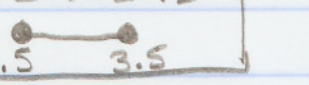
(27) $-2t \leq 10$ and $-3t > -6$

$t \geq -5$ $\quad t < 2$

(28) $-4 \leq 3 - 2x \leq 4$

$-7 \leq -2x \leq 1$

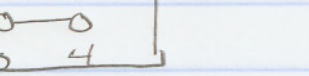
$3.5 \geq x \geq -.5$



(29) $-3 < 2x - 3 < 5$

$0 < 2x < 8$

$0 < x < 4$



(30) $2x - 9 = 1$ $\quad 2x - 9 = -1$

$2x = 10$ $\quad 2x = 8$

$x = 5$ $\quad x = 4$

(31) $2y + 5 = 3y$ $\quad 2y + 5 = -3y$

$y = 5$ $\quad y = -1$

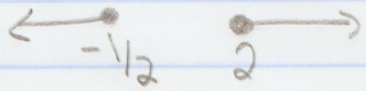
extraneous

(32) $|4z - 3| \geq 5$ OR type

$4z - 3 = 5$ $\quad 4z - 3 = -5$

$4z = 8$ $\quad 4z = -2$

$z = 2$ $\quad z = -1/2$



(33) $6|5x - 2| - 1 < 17$

$6|5x - 2| < 18$

$|5x - 2| < 3$ And type

$5x - 2 = 3$ $\quad 5x - 2 = -3$

$5x = 5$ $\quad 5x = -1$

$x = 1$ $\quad x = -1/5$

(34) $59 < T < 73$

$|T - 66| \leq 7$

(35) $9/5$ $\boxed{= 0}$

(36) $\boxed{2/5}$

(37) $56/80 = \boxed{70\%}$