

Practice Test Unit 2

Name: Key

PART I: Equations

Accelerated 7th Grade Math

Simplify.

1. $6y + 3x - x + 2$

2. $2(x - 5) + 7x$

$2x + -10 + 7x$

#1 answer: $2x + 6y + 2$

#2 answer: $9x + -10$

3. $-3(x + 9) - 2 + 5x$

4. $22x - 7 - 2(x - 5) + 13x$

$-3x + -27 - 2 + 5x$

$22x + -7 + -2x + 10 + 13x$

#3 answer: $2x + -29$

#4 answer: $33x + 3$

Solve. Don't forget to SHOW ALL OF YOUR WORK AND YOUR STEPS!

5. $a - 6 = -21$

$+6 +6$

6. $-6 - d = 7$

$+6 +6$

$-1 \cdot -d = 13 \cdot -1$

#5 answer: $a = -15$

#6 answer: $d = -13$

7. $\frac{6f}{6} = \frac{-54}{6}$

8. $-2 \cdot -7 = -\frac{14}{2} \cdot -2$

#7 answer: $f = -9$

#8 answer: $g = 14$

$$9. \quad 5 = -\frac{1}{3}h - 7$$

$$\quad +7 \quad +7$$

$$-3 \cdot 12 = -3 \cdot -\frac{1}{3}h$$

#9 answer: $h = -36$

$$10. \quad -2 + \frac{m}{4} = -9$$

$$\quad +2 \quad +2$$

$$4 \cdot \frac{m}{4} = -7 \cdot 4$$

#10 answer: $m = -28$

$$11. \quad -2 = \frac{3}{4}n - 8$$

$$\quad +8 \quad +8$$

$$\frac{4}{18} \cdot 6 = \frac{4}{3} \cdot \frac{3}{4}n$$

$$8 = n$$

#11 answer: $n = 8$

$$12. \quad 3k - 8 = 16$$

$$\quad +8 \quad +8$$

$$\frac{3k}{3} = \frac{24}{3}$$

#12 answer: $k = 8$

$$13. \quad 2m + 12 + 6m = -4$$

$$8m + 12 = -4$$

$$\quad -12 \quad -12$$

$$\frac{8m}{8} = \frac{-16}{8}$$

#13 answer: $m = -2$

$$14. \quad -2(3x + 6) = 6$$

$$-6x + -12 = 6 \quad \text{or} \quad 3x + 6 = -3$$

$$\quad +12 \quad +12 \quad \quad \quad -6 \quad -6$$

$$\frac{-6x}{-6} = \frac{18}{-6}$$

$$\frac{3x}{3} = \frac{-9}{3}$$

#14 answer: $x = -3$

$$15. \quad 4x - (x - 6) = 30$$

$$4x - x + 6 = 30$$

$$3x + 6 = 30$$

$$-6 \quad -6$$

$$\frac{3x}{3} = \frac{24}{3}$$

#15 answer: $x = 8$

$$17. \quad 6f - 4 + 7 - f = f - 18 - 3f$$

$$5f + 3 = -2f - 18$$

$$+2f \quad +2f$$

$$7f + 3 = -18$$

$$-3 \quad -3$$

$$\frac{7f}{7} = \frac{-21}{7}$$

$$f = -3$$

#17 answer: $f = -3$

$$16. \quad 4x - 1 = 6x - 5$$

$$-4x \quad -4x$$

$$-1 = 2x - 5$$

$$+5 \quad +5$$

$$\frac{4}{2} = \frac{2x}{2}$$

#16 answer: $x = 2$

$$18. \quad 5 - (2g + 3) - 4 = 3(g + 4) + 2g$$

$$5 - 2g + 3 - 4 = 3g + 12 + 2g$$

$$-2g + -2 = 5g + 12$$

$$+2g \quad +2g$$

$$-2 = 7g + 12$$

$$-12 \quad -12$$

$$\frac{-14}{7} = \frac{7g}{7}$$

$$g = -2$$

#18 answer: $g = -2$

For each of the following, create an equation and show your work for solving it.

19. Michele has a gift card for 48 free movie rentals from Blockbuster. If she went to Blockbuster 8 times, distinguish how many movies she got each time?

$m = \# \text{ of movies gotten}$

#19 equation: $8m = 48$

$$\frac{8m}{8} = \frac{48}{8}$$

$$m = 6$$

#19 answer: 6 movies gotten each time

20. Mr. Cravotta and Mr. Roy decided to prepare for the school rollerblading race by rollerblading a certain number of miles each day. Mr. Cravotta practiced for 5 days. Mr. Roy attended a family reunion in East Lansing and could only practice for 3 days. Together, they rollerbladed 32 miles. Distinguish how many miles they rollerbladed per day?

$m = \# \text{ of miles rollerbladed per day.}$

#20 equation: $5m + 3m = 32$
or $8m = 32$

$$5m + 3m = 32$$

$$\frac{8m}{8} = \frac{32}{8}$$

$$m = 4$$

#20 answer: 4 miles rollerbladed each day

21. The equation $a = \frac{V_f - V_i}{t}$ is used to find the acceleration "a" of an object, given the initial velocity "v_i", the final velocity "v_f" and the time. First, solve the equation for v_f, then determine the final velocity of a car that accelerates at 5.4 m/s² for 5.2 seconds, and has an initial velocity is zero.

$$t \cdot a = \frac{V_f - V_i}{t} \cdot t$$

$$at = V_f - V_i$$

+V_i +V_i

$$at + V_i = V_f$$

21 answer: $\frac{28.08m}{sec}$

$$V_f = \left(\frac{5.4m}{sec^2} \right) \cdot (5.2sec) + 0$$

$$V_f = \frac{28.08m}{sec}$$

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PART II: Inequalities

Accelerated 7th Grade Math

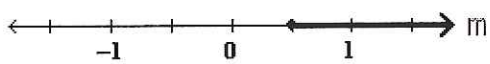
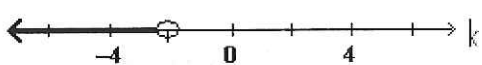
For 22–24, determine whether each number is a solution of the given inequality $4z + 7 \geq 15$. Show your work for each. Write yes or no in the answer spot.

22. -3 $4(-3) + 7 \geq 15$
 $-12 + 7 \geq 15$
 $-5 \geq 15$
 #22. answer: no
23. 3 $4(3) + 7 \geq 15$
 $12 + 7 \geq 15$
 $19 \geq 15$ ✓
 #23. answer: yes
24. 6 $4(6) + 7 \geq 15$
 $24 + 7 \geq 15$
 $31 \geq 15$ ✓
 #24. answer: yes ✓


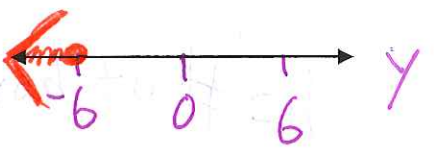
For 25–26, write an inequality to model each situation.

25. A student can take at most 6 classes.
 $c = \# \text{ of classes}$ $c \leq 6$
 #25. answer: $c \leq 6$
 or $6 \geq c$
26. Elephants can drink up to 45 gallons at a time.
 $g = \# \text{ of gallons}$ $g \leq 45$
 #26. answer: $g \leq 45$
 or $45 \geq g$

For 27–28, write an inequality for each graph.

27. 
 #27. answer: $m \geq \frac{1}{2}$
 or $\frac{1}{2} \leq m$
28. 
 #28. answer: $k < -2$
 or $-2 > k$

For 29–34, solve each inequality and graph the solution. Show your work.

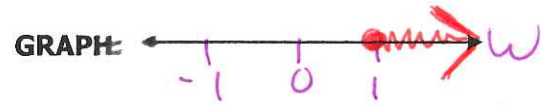
29. $x + 8 \leq 10$
 $-8 \quad -8$
 $x \leq 2$
 #29. answer: $x \leq 2$
 GRAPH: 
30. $-24 \geq 4y$
 $\frac{-24}{4} \geq \frac{4y}{4}$
 $-6 \geq y$
 $y \leq -6$
 #30. answer: $y \leq -6$
 GRAPH: 

31. $6w \geq -7w + 13$

$$\begin{array}{r} +7w \quad +7w \\ 13w \geq 13 \\ \hline 13 \quad 13 \\ w \geq 1 \end{array}$$

$w \geq 1$

#31. answer: $w \geq 1$

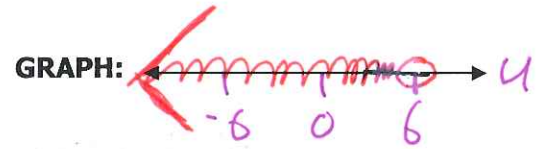


32. $9 - u > 3$

$$\begin{array}{r} -9 \quad -9 \\ -1 \cdot -u > -6 \cdot -1 \\ u < 6 \end{array}$$

$u < 6$

#32. answer: $u < 6$



33. $4 - 3(m + 3) + 4m \leq 15 - (m - 4)$

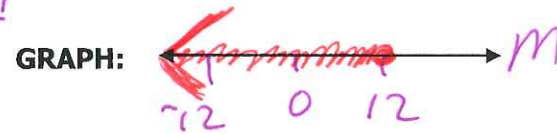
$$4 + -3m + -9 + 4m \leq 15 + -m + 4$$

$$m + -5 \leq -m + 19$$

$$\begin{array}{r} +m \quad +m \\ 2m + -5 \leq 19 \\ \hline +5 \quad +5 \\ 2m \leq 24 \\ m \leq 12 \end{array}$$

$m \leq 12$

#33. answer: $m \leq 12$

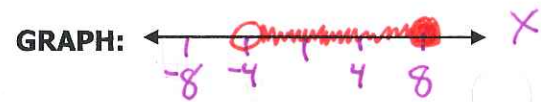


34. $-6 < \frac{2x - 4}{2} \leq 6 \cdot 2$

$$\begin{array}{r} -12 < 2x - 4 \leq 12 \\ +4 \quad +4 \quad +4 \end{array}$$

$$\begin{array}{r} -8 < 2x \leq 16 \\ \hline -4 < x \leq 8 \end{array}$$

#34. answer: $-4 < x \leq 8$



For 35–36, write and solve an inequality. Show your work.

35. The DeWitt bank charges \$13.5 per apple pie during their annual fundraiser. Distinguish how many apple pies they have to sell to earn at least \$2,000?

$a = \# \text{ of apple pies}$

$$\begin{array}{r} 13.5a \geq 2,000 \\ \hline 13.5 \quad 13.5 \\ a \geq 148.\overline{148} \end{array}$$

#35 inequality: $13.5a \geq 2,000$

#35 answer: Need to sell 149 apple pies in order to fundraise at least \$2,000.

36. An elevator can safely hold no more than 2,500 pounds. A worker must use the elevator to take 45-lbs boxes to a storage area. If the worker weighs 165-lbs, distinguish how many boxes can he safely move at one time?

$b = \# \text{ of boxes}$

$$\begin{array}{r} 45b + 165 \leq 2,500 \\ -165 \quad -165 \\ \hline 45b \leq 2,335 \\ \hline 45 \quad 45 \\ b \leq 51.\overline{8} \end{array}$$

#36 inequality: $45b + 165 \leq 2,500$

#36 answer: 51 boxes can be safely moved to keep the weight in elevator at no more than 2,500-lbs.