

## Integer Operations

- Adding Integers
  - ✓ If the signs are the same, add the numbers and keeps the sign.
  - ✓ If the signs are different, find the difference and use the sign of the number with the greatest absolute value.
- Subtracting Integers
  - ✓ Remember: Keep-Change-Change
  - ✓ Then follow the rules for addition.
- Multiplying and Dividing Integers
  - ✓ If there are an odd number of negatives, your answer will be negative.
  - ✓ If there is an even number of negatives, your answer will be positive.

**YOU MUST BE ABLE TO DO THESE PROBLEMS WITHOUT A CALCULATOR!**

1. $-13 + 7 = -6$	2. $-14 + (-17) =$
3. $9 + (-4) + (-6) = -1$	4. $(-3) + (-14) + 20$
5. $16 - 19 = 16 + (-19) = -3$	6. $7 - (-11)$
7. $-14 - (-5) = -14 + 5 = -9$	8. $-21 - 5 =$
9. $(-3) \cdot (-4) = 12$	10. $12 \cdot (-4) =$
11. $5 \cdot (-3) \cdot 2 = -30$	12. $(-11) \cdot (-9) =$
13. $(-125) \div (-5) = 25$	14. $243 \div (-9) =$
15. $\frac{(-480)}{12} = -40$	16. $(-490) \div (-35) =$

## Absolute Value

How far is this number from 0?

17. $ -47  = 47$	18. $ 187  =$
19. $ 20 + -25  =  -5  = 5$	20. $ -13  +  15  =$

## Order of Operations

- Parenthesis
- Exponents
- Multiplication or Division
- Addition or Subtraction

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21. $12 \div 3 + 12 \div 4 =$ $4 + 12 \div 4$ $4 + 3$ $7$	22. $(21 \div 7 + 4) \cdot 11 =$
23. $144 \div 16 \cdot 9 \div 3 =$ $9 \cdot 9 \div 3$ $81 \div 3$ $27$	24. $-15 - 8 + (-4) - (-6) =$
25. $(5 + -18 \cdot 2)(16 - 4^2) =$ $(5 + -36)(16 - 16)$ $-29 \cdot 0$ $0$	26. $\frac{-36 \div 2^2}{67 - 70} =$

### Fraction Computation

- To add and subtract fractions, first find common denominators. Then add or subtract numerators and keep the denominator.
- To multiply fractions, change all mixed and whole numbers to improper fractions then multiply numerators and multiply denominators. Cross cancel (factor) if possible.
- To divide fractions, change all mixed and whole numbers to improper fractions and then “Keep-Change-Flip.”
- Always simplify your answer.

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<p>27.</p> $\frac{7}{8} - \frac{5}{6} = \frac{21}{24} - \frac{20}{24} = \frac{1}{24}$	<p>28.</p> $3\frac{1}{6} + \frac{5}{12} =$
<p>29.</p> $\frac{7}{8} \cdot \frac{4}{7} = \frac{28}{56} = \frac{1}{2}$	<p>30.</p> $4\frac{2}{5} \cdot 5 =$
<p>31.</p> $2\frac{1}{2} \div \frac{3}{4} = \frac{5}{2} \div \frac{3}{4} = \frac{5}{2} \cdot \frac{4}{3} = \frac{10}{3}$ $= 3\frac{1}{3}$	<p>32.</p> $1\frac{1}{4} \div \frac{1}{2}$

### Expressions-Combining Like Terms

$$\begin{aligned} \text{Ex: } (s+12) + (3s+8) &= s + 12 \\ &+ 3s + 8 \\ &= 4s + 20 \end{aligned}$$

<p>33. <math>(4y + 3) + (y - 2)</math> <math>5y + 1</math></p>	<p>34. <math>(3p - 7) + (5p - 6)</math></p>
<p>35. <math>(3 + 7m) - (7m + 2)</math> <math>1</math></p>	<p>36. <math>(5b - 9) - (24 - 6b)</math></p>

## Equations

- Combine like terms.
- Add or subtract to get the coefficient and variable alone.
- Multiply or divide to get the variable by itself.

37. $x + 15 = 8$ $\quad -15 \quad -15$ $\quad \quad x = -7$	38. $2y - 3y = 5$
39. $2x + 6 = 22$ $\quad -6 \quad -6$ $\quad 2x = 16$ $\quad \frac{2x}{2} = \frac{16}{2}$ $\quad \quad x = 8$	40. $5 + 4x = 41$
41. $\frac{x}{3} + 10 = 15$ $\quad -10 \quad -10$ $\quad 3 \cdot \frac{x}{3} \quad 5 \cdot 3$ $\quad \quad x = 15$	42. $\frac{x}{4} - 3 = 24$

## Distributive Property



Ex:  $4(m + 3) = 4m + 12$

43. $10(a - 4) = 10a - 40$	44. $3(7x - 5)$
45. $3(-2x - 4y) = -6x - 12y$	46. $\frac{1}{2}(8x + 10)$

Using the Distributive Property to Solve for x.

47. $3(2x + 8) = 72$ $\quad 6x + 24 = 72$ $\quad \quad -24 \quad -24$ $\quad \quad \frac{6x}{6} = \frac{48}{6}$ $\quad \quad \quad x = 8$	48. $5(4 + 3x) = 65$
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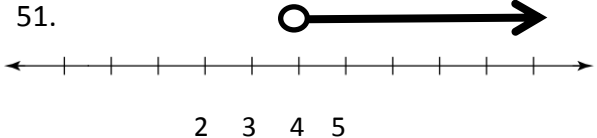
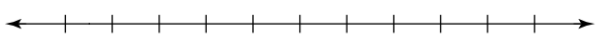
## Inequalities

Solve the inequalities. Graph the solution.

- Solve for  $x$ .
- Mark your number line.
- Use  $\bullet$  for  $=$ ,  $\geq$ , and  $\leq$ .
- Use  $\circ$  for  $>$  and  $<$ .

Ex.:  $x \leq -3$

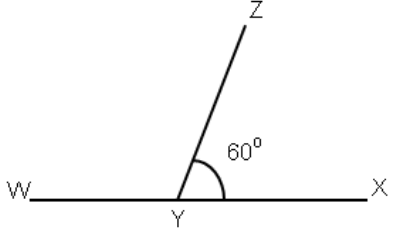
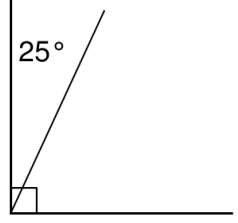
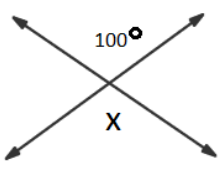
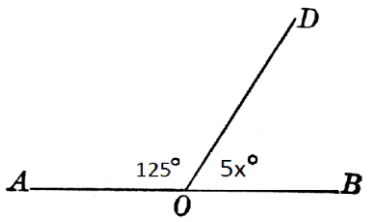


<p>49. <math>x - 8 \geq -4</math></p> <p><math>x \geq 4</math></p>	<p>50. <math>2(3x - 2) &lt; -16</math></p>
<p>51. </p>	<p>52. </p>

## Geometry –Angles

- Two angles are complimentary when the sum of their measures is  $90^\circ$ .
- Two angles are supplementary when the sum of their measures is  $180^\circ$ .
- Two angles are vertical when they are opposite angles formed by the intersection of two lines. Vertical angles have the same measure.

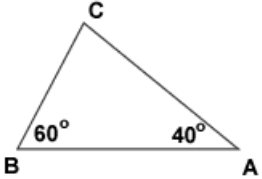
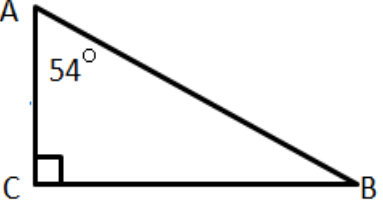
Tell whether angles are complimentary, supplementary or vertical. Find the value of  $x$ .

<p>53. </p> <p>Supplementary angles <math>WYZ = 120^\circ</math></p>	<p>54. </p>
<p>55. </p> <p>Vertical Angles <math>x = 100^\circ</math></p>	<p>56. </p>

Geometry-Interior Angles Sums

Find the measure of the missing angle.

- The sum of the angle measure of a triangle is  $180^\circ$ .

<p>57.</p>  <p style="text-align: center; color: red;"><math>60 + 40 + x = 180</math> <math>x = 8</math></p>	<p>58.</p> 
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Geometry- Two Dimensional Figures

Find the area and perimeter/circumference of the figures below. Round to the nearest hundredth when necessary. Use 3.14 for  $\pi$ .

Rectangle:

$A = l \cdot w$

Triangle:

$A = \frac{1}{2} b \cdot h$



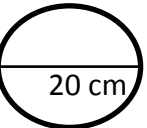
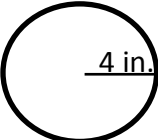
Trapezoid:

$A = \frac{1}{2} (a + b) \cdot h$

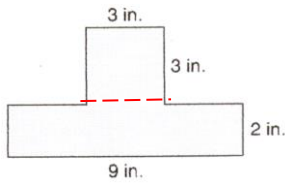
Circle

$A = \pi \cdot r^2$

$C = \pi \cdot d$

<p>59.</p>  <p style="text-align: center;">8 yd.</p> <p style="color: red;"><math>A = 64 \text{ yd}^2</math> <math>P = 32 \text{ yd.}</math></p>	<p>60.</p>  <p style="text-align: center;">6 cm</p> <p><math>A = \underline{\hspace{2cm}}</math> <math>P = \underline{\hspace{2cm}}</math></p>
<p>61.</p>  <p style="text-align: center;">20 cm</p> <p style="color: red;"><math>A = \pi \cdot 10^2 = 314 \text{ cm}^2</math> <math>C = \pi \cdot 20 = 62.8 \text{ cm}</math></p>	<p>62.</p>  <p style="text-align: center;">4 in.</p> <p><math>A = \underline{\hspace{2cm}}</math> <math>C = \underline{\hspace{2cm}}</math></p>

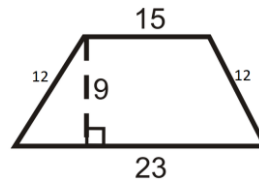
63.



$A = 27 \text{ in}^2$

$P = 28 \text{ in}$

64.

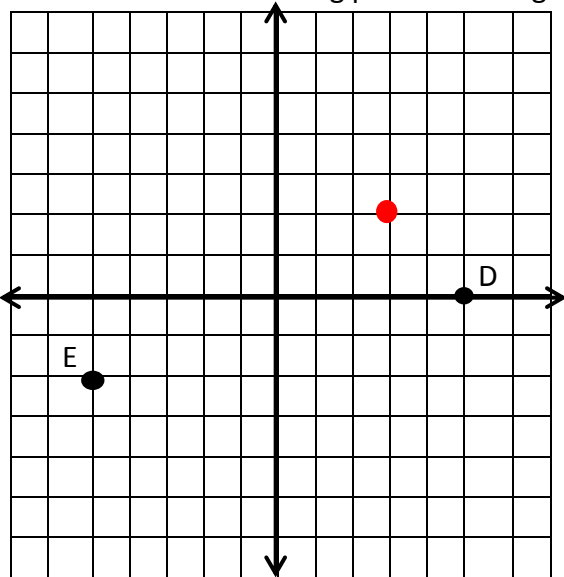


$A = \underline{\hspace{2cm}}$

$P = \underline{\hspace{2cm}}$

Coordinate Graphing (x,y)  $\longrightarrow$  (across , up/down)

65-68. Plot the following points on the graph. Label your points. 79-80 Find the coordinates.



65. A(3,2)	66. C(0, -5)
67. D(5,0)	68. E(     )

Proportions

Find the missing value. Round to the nearest hundredth when necessary. Use cross multiplication.

69. $\frac{3}{6} = \frac{n}{24}$ $(3 \cdot 24) \div 6 = 12$	70. $\frac{2.5}{4} = \frac{10}{x}$
71. $\frac{1}{2} = \frac{c}{7}$ $(1 \cdot 7) \div 2 = 3.5$	72. $\frac{5}{10} = \frac{n}{36}$

Now that you have finished, you know which skills you need to practice to be ready for Algebra. Use the resources listed on the cover letter to find other ways to review these skills on your own.