

Show all work on a separate sheet of paper

- 1 Emily has a decorative cord which is a yard long. She needs to cut the cord into pieces which are $2 \frac{3}{4}$ inches long. How many $2 \frac{3}{4}$ pieces will she get from the yard long cord ?

$$36 \div 2 \frac{3}{4} = 36 \div \frac{11}{4} = 36 \cdot \frac{4}{11} = \frac{144}{11} = 13 \frac{1}{11} \quad (13 \text{ pieces})$$

- 2 Ed purchased an 8 pound (8 lbs.) bag of tomatoes. On the way home, he gave $3 \frac{1}{2}$ pounds to his Aunt Ethel and $2 \frac{2}{3}$ lbs. to his friend. How many pounds reached home ?

$$8 - (3 \frac{1}{2} + 2 \frac{2}{3}) = 8 - 6 \frac{1}{6} = 1 \frac{5}{6} \text{ pounds}$$

- 3 The PE class had 48 students. 25 % of the students were on the track team, $\frac{1}{3}$ were on the tennis team, $\frac{1}{8}$ were playing for the basketball team. How many students were not participating on any team ?

$$25\% (\frac{1}{4}) + \frac{1}{3} + \frac{1}{8} + np = \text{all students}$$

$\frac{17}{24}$ played sports so $\frac{7}{24}$ did NOT play

$$34 + 14 = 48$$

- 4 Mr. Allyn was served fresh Halibut with a tasty sauce \$12.75. His wife chose for the Salmon fillet for \$12.00. Each had one Caesar salad for \$5.25. The tip was 15%. What was the total cost of the meal? (no calculators)

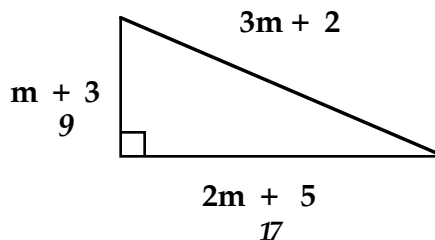
$$\text{meal } \$30 \quad \text{tip } \$4.50 \qquad \text{meal } \$35.25 \quad \text{tip } \sim \$5.25$$

- 5 A circle has a diameter of $2y + 3$. What is the circumference of that circle in terms of pi? If $y = 2$, what is the area of the circle in terms of pi ?

$$\text{circumference} = D\pi \quad (2y + 3)\pi \quad \text{If } y = 2, \quad \begin{array}{l} \text{diameter} = 7 \\ \text{radius} = 3.5 \end{array}$$

$$\text{area of circle} = \pi r^2 = (3.5)^2 \pi$$

- 6 A right triangle has a base of $2m + 5$, a height of $m + 3$. The hypotenuse is $3m + 2$. If the perimeter is 46 inches, what is the area of the triangle ?



$$6m + 10 = 46$$

$$m = 6$$

$$\frac{9 \cdot 17}{2} = 76 \frac{1}{2}$$

7 Simplify: Bring like terms together (associate) and combine

• $3b + (-3x) + 4 - 2b - 4x + 2x^2 + 3(b+x)$

$$3b + (-3x) + 4 - 2b + 2x^2 + 3b + 3x$$

$$(3b - 2b + 3b) + (-3x + 3x - 4x) + 4 = 4b - 4x + 4$$

• $3 - (-3x) + 4 - 2b - (-4x) + 2x^2 - 3(b+x)$

$$3 + 3x + 4 - 2b + 4x + 2x^2 - 3b - 3x$$

$$2x^2 + (3x + 4x - 3x) + (-2b - 3b) + (4 + 3) = 2x^2 + 4x - 5b + 7$$

• $4 + 3(x-2) - x + 5 - 2(x-3)$

$$4 + 3x - 6 - x + 5 - 2x + 6 = 9$$

• Challenge

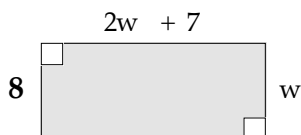
$$-4x(-x-2) - 2y(-3-y) = 4x^2 + 8x + 6y + 2y^2$$

8 Simplify $-3m + 2m^2 + 6 + 5m - 3 + m^2 + 6$

standard form $3m^2 + 2m + 9$

9 A rectangular garden is 7 feet longer than twice its width. If the perimeter is 62 feet.

an equation to find the length and width of the garden
 find the area of the garden



$$6w + 14 = 62$$

$$6w + 14 - 14 = 62 - 14$$

$$6w = 48$$

$$1/6 \cdot 6w = 48 \cdot 1/6$$

$$23$$

$$\text{area garden} = 8 \cdot 23 = 184 \text{ sq feet}$$

$$w = 8$$

- 10 Three consecutive integers when added total 144. What are the integers.

$$x + (x + 1) + (x + 2) = 144$$

$$3x + 3 = 144$$

$$3x + 3 - 3 = 144 - 3$$

$$3x = 141$$

$$\frac{1}{3} \cdot 3x = \frac{1}{3} \cdot 141$$

$$x = 47$$

47 48 49

- 11 Graphing the following inequalities on the number line

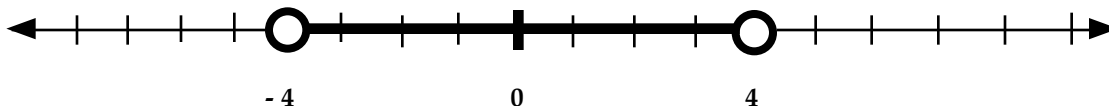
Graph 1 $|x| < 4$

Graph 2 $|m| > 3$

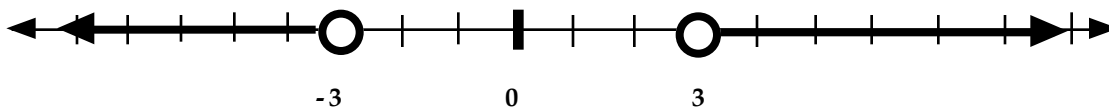
Graph 3 z is greater than -5 and less than or equal to 6

Graph 4 $|2x + 1| \geq 7$

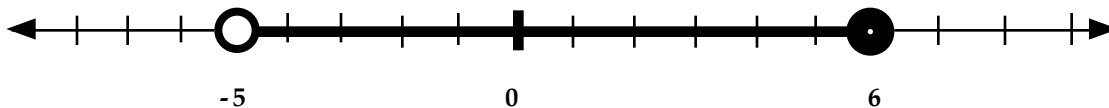
Graph 1



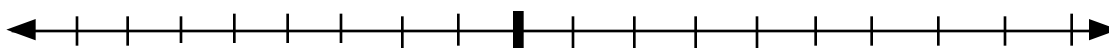
Graph 2



Graph 3



Graph 4



12 Functions Domain Range

Words

The small duck pond contains 40 gallons. The water pipe fills the pond a rate of 8 gallons per minute. If the pond will hold 216 gallons, how long will it take to fill the pond?

Equation:

$$8m + 40 = 216$$

$$8m + 40 - 40 = 216 - 40$$

$$8m = 176$$

$$1/8 \cdot 8m = 176 \cdot 1/8$$

$$m = 22$$

Table

minutes	0	1			22
gallons	40	48			216

Graph

Domain { all non negative numbers }

Range { 40 ... 216 }

