Station A

1. Write each number in expanded form.
   a) 4 billion
   b) 3.2×10^5
   c) 8.2 million
   d) 2.5×10^{-4}

2. Write each number in scientific notation.
   a) 7.62 million
   b) 0.000 0015
   c) 437
   d) 843 200

3. Place these numbers from least to greatest.
   a) $5, -3, -7, 2, 0, 14$

   b) $\frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{8}, \frac{1}{2}, \frac{1}{10}$

   c) $\sqrt{5}, -\sqrt{3}, \sqrt{2}, -\sqrt{7}, \sqrt{10}, -\sqrt{5}$

   d) $\frac{2}{3}, \frac{3}{4}, \frac{-1}{2}, \frac{-5}{6}, \frac{1}{3}, \frac{-3}{4}$

Solutions

Station A

1. Write each number in expanded form.
   a) 4 billion 4 000 000 000 b) 3.2×10^5 320 000
   c) 8.2 million 8 200 000 d) 2.5×10^{-4} 0.00025

2. Write each number in scientific notation.
   a) 7.62 million 7.62×10^6 b) 0.000 0015 1.5×10^{-6}
   c) 437 4.37×10^2 d) 843 200 8.432×10^5

3. Place these numbers from least to greatest.
   a) $5, -3, -7, 2, 0, 14$
   $-7, -3, 0, 2, 5, 14$

   b) $\frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{8}, \frac{1}{2}, \frac{1}{10}$ $\frac{1}{10}, \frac{1}{8}, \frac{1}{7}, \frac{1}{5}, \frac{1}{3}, \frac{1}{2}$

   c) $\sqrt{5}, -\sqrt{3}, \sqrt{2}, -\sqrt{7}, \sqrt{10}, -\sqrt{5}$
   $-\sqrt{7}, -\sqrt{5}, -\sqrt{3}, \sqrt{2}, \sqrt{5}, \sqrt{10}$

   d) $\frac{2}{3}, \frac{3}{4}, \frac{-1}{2}, \frac{-5}{6}, \frac{1}{3}, \frac{-3}{4}$

   $-\frac{5}{6}, -\frac{3}{4}, -\frac{1}{2}, \frac{1}{3}, \frac{2}{3}, \frac{3}{4}$

   $\left(-\frac{10}{12}, \frac{-9}{12}, -\frac{6}{12}, \frac{4}{12}, \frac{8}{12}, \frac{9}{12}\right)$

Station B

1. Calculate the square roots of each of these numbers.
(consider both positive and negative answers!!!)

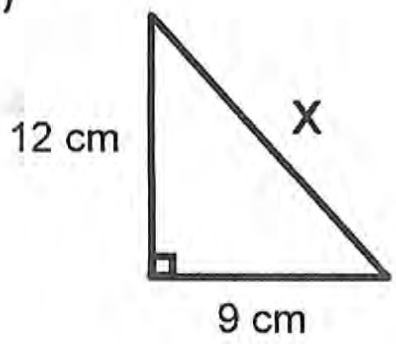
a) 9 b) 4 c) 16 d) 81

2. Estimate these square roots, without using a calculator.

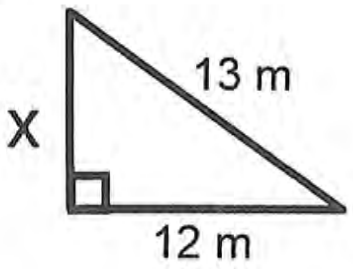
a) $\sqrt{12}$ b) $\sqrt{7}$ c) $\sqrt{75}$

3. Solve for x.

a)



b)



Solutions

Station B

1. Calculate the square roots of each of these numbers.
(consider both positive and negative answers!!!)

a) 9 b) 4 c) 16 d) 81

$= 3, -3$ $= 2, -2$ $= 4, -4$ $= 9, -9$

2. Estimate these square roots, without using a calculator.

a) $\sqrt{12}$

between $\sqrt{9}$ and $\sqrt{16}$
$\therefore$ 3 and 4

≈ 3.5

b) $\sqrt{7}$

between $\sqrt{4}$ and $\sqrt{9}$
$= 2$ $= 3$

$\doteq 2.6$

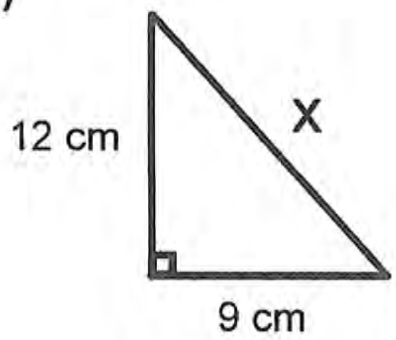
c) $\sqrt{75}$

between $\sqrt{64}$ and $\sqrt{81}$
$= 8$ $= 9$

$\doteq 8.6$

3. Solve for x.

a)



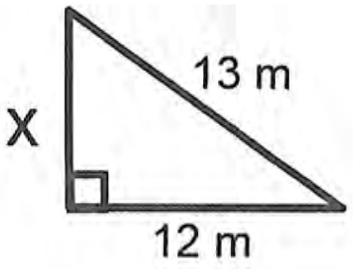
$x^2 = 12^2 + 9^2$

$x^2 = 144 + 81$

$x^2 = 225$

$x = 15$

b)



$x^2 = 13^2 - 12^2$

$x^2 = 169 - 144$

$x^2 = 25$

$x = 5$

Station C

1. Complete the table.

Fraction	Decimal	Percent
	0.21	
		8%
$\frac{12}{50}$		
	1.35	
		140%
$\frac{1}{20}$		

2. A sweater is on sale for 25% off. If the regular price is $72.99, determine the sale price.

3. Krishna got 14 out of 20 on their science test. What is their percentage grade?

Solutions

Station C

1. Complete the table.

Fraction	Decimal	Percent
$\frac{21}{100}$	0.21	21%
$\frac{8}{100} = \frac{2}{25}$	0.08	8%
$\frac{12}{50} = \frac{24}{100}$	0.24	24%
$\frac{135}{100} = \frac{27}{20}$	1.35	135%
$\frac{14}{10} = \frac{7}{5}$	1.4	140%
$\frac{1}{20}$	0.05	5%

2. A sweater is on sale for 25% off. If the regular price is $72.99, determine the sale price. $72.99(0.75)$

$\doteq 54.74$

3. Krishna got 14 out of 20 on their science test. What is their percentage grade? $\frac{14}{20} \times 100$

$= 70\%$

Station D

1. Simplify.

a) $-3+(-4)$ b) $2-(-3)$ c) $-5+(+1)$

d) $-2-(-1)$ e) $5+(-3)$ f) $7-(+9)$

2. Simplify.

a) $(-2)(-3)$ b) $(4)(-5)$ c) $(-3)(+1)$

d) $\frac{-12}{3}$ e) $\frac{-15}{-5}$ f) $\frac{20}{-4}$

3. Simplify.

a) $5-4\text{x}2+3$

b) $-3 \text{ x } (-2)-(8\text{x}2)$

c) $5^2-3 \text{ x } 2^2+2^3$

Solutions

Station D

1. Simplify.

a) $-3+(-4)$
$= -7$

b) $2-(-3)$
$= 5$

c) $-5+(+1)$
$= -4$

d) $-2-(-1)$
$= -1$

e) $5+(-3)$
$= 2$

f) $7-(+9)$
$= -2$

2. Simplify.

a) $(-2)(-3)$
$= 6$

b) $(4)(-5)$
$= -20$

c) $(-3)(+1)$
$= -3$

d) $\frac{-12}{3}$
$= -4$

e) $\frac{-15}{-5}$
$= 3$

f) $\frac{20}{-4}$
$= -5$

3. Simplify.

a) $5-4x2+3$
$= 5-8+3$
$= -3+3$
$= 0$

b) $-3 \times (-2)-(8x2)$
$= 6 - 16$
$= -10$

c) $5^2-3 \times 2^2+2^3$
$= 25-3\times 4+8$
$= 25-12+8$
$= 13+8$
$= 21$

Station E

1. Simplify.

   a) $2m+3m$ b) $5xy-7xy$ c) $-3w-9w$

2. Simplify.

   a) $(3x+2y)+(4x-5y)$ b) $(2a-4b)+(a-2b)$

3. Evaluate each expression for x=3 and y=-2.

   a) $2x-3y$ b) $3xy+2y-x$

4. Evaluate each expression for $x=\frac{-1}{2}$ and $y=\frac{3}{4}$.

   a) $2x+3y$ b) $xy-5x$

Solutions

Station E

1. Simplify.

a) $2m+3m$

$= 5m$

b) $5xy-7xy$

$= -2xy$

c) $-3w-9w$

$= -12w$

2. Simplify.

a) $(3x+2y)+(4x-5y)$

$= 7x-3y$

b) $(2a-4b)+(a-2b)$

$= 3a-6b$

3. Evaluate each expression for x=3 and y=-2.

a) $2x-3y$

$= 2(3)-3(-2)$

$= 6+6$

$= 12$

b) $3xy+2y-x$

$= 3(3)(-2)+2(-2)-(3)$

$= -18-4-3$

$= -25$

4. Evaluate each expression for $x=\frac{-1}{2}$ and $y=\frac{3}{4}$.

a) $2x+3y$

$= 2\left(\frac{-1}{2}\right)+3\left(\frac{3}{4}\right)$

$= \frac{-2}{2}+\frac{9}{4}$

$= \frac{-4}{4}+\frac{9}{4}$

$= \frac{5}{4}$

b) $xy-5x$

$= \left(\frac{-1}{2}\right)\left(\frac{3}{4}\right)-5\left(\frac{-1}{2}\right)$

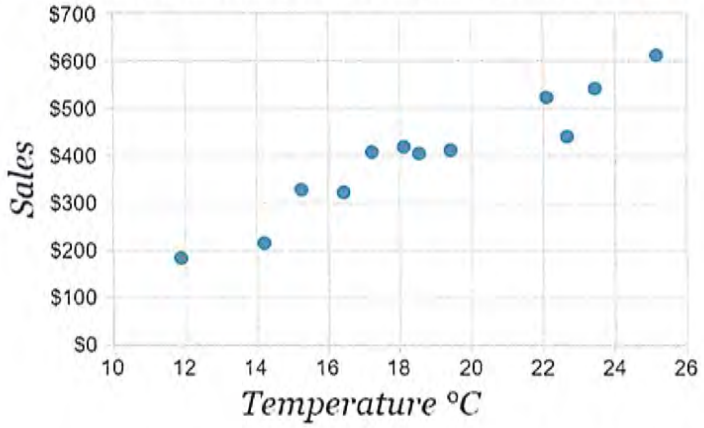
$= \frac{-3}{8}+\frac{5}{2}$

$= \frac{-3}{8}+\frac{20}{8}$

$= \frac{17}{8}$

Station F

1. Use the following scatter plot showing ice cream sales to answer the questions below.



a) Is the relationship positive or negative? _____

b) Is the relationship strong or weak? _____

c) Is the relationship linear or non-linear? _____

d) Estimate the sales when the temperature was 22°C? _____

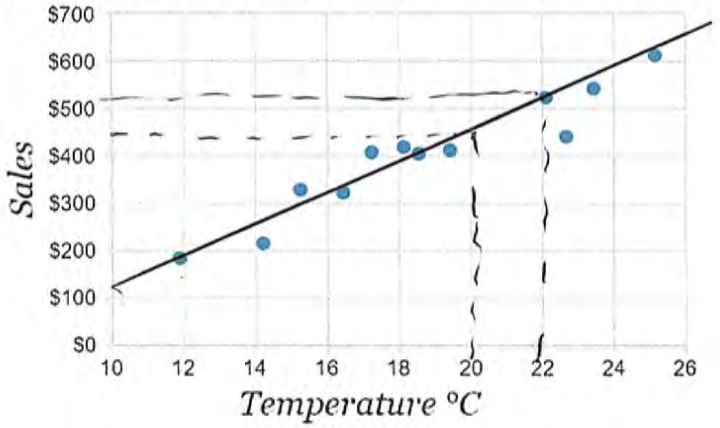
e) Estimate the temperature that would result in sales of $450._____

2. Create a scatter plot for the data shown.

# books	Weight (lbs)
1	0.5
1	1.2
2	1.2
2	2.6
3	1.8
4	2.8
4	5.4
5	6.5
6	5.5
8	8

Station F

1. Use the following scatter plot showing ice cream sales to answer the questions below.



a) Is the relationship positive or negative? positive
b) Is the relationship strong or weak? strong
c) Is the relationship linear or non-linear? linear
d) Estimate the sales when the temperature was 22°C? #520
e) Estimate the temperature that would result in sales of $450. 20°C.

2. Create a scatter plot for the data shown.

# books	Weight (lbs)
1	0.5
1	1.2
2	1.2
2	2.6
3	1.8
4	2.8
4	5.4
5	6.5
6	5.5
8	8

Weight of Books

Weight (lbs)

10
9
8
7
6
5
4
3
2
1

0 1 1/2 1/3 1/4 1/5 1/6 1/7 1/8 1/9

Books

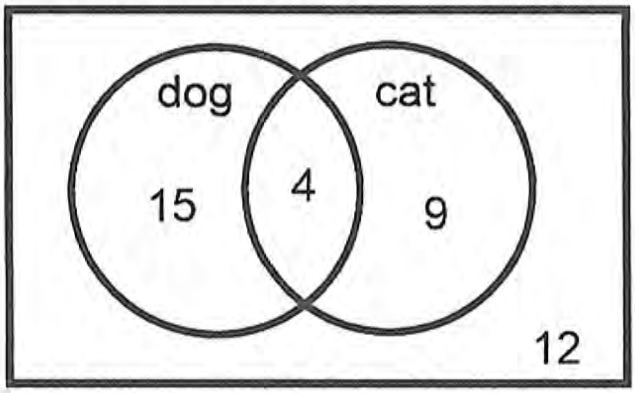
- labels
- title
- scale

Station G

1. Determine the mean, median, and mode for the data.

   5, 7, 8, 8, 8, 9, 9, 10, 10, 11, 11, 11, 11, 12

2. Use the Venn Diagram below to determine the probability that a person randomly selected from this group has:



a) only a dog

b) at least one cat or dog

c) both a cat and a dog

d) either a cat or a dog but not both

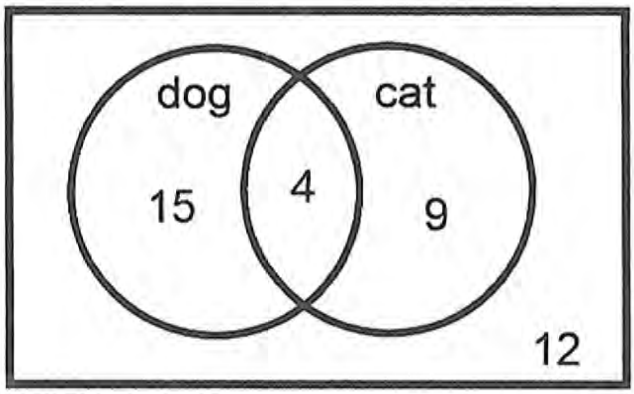
Station G

1. Determine the mean, median, and mode for the data.

5, 7, 8, 8, 8, 9, 9, 10, 10, 11, 11, 11, 11, 12 (14 ← # data)

mean = $\frac{130}{14}$ $\doteq 9.29$ median = 9.5 mode = 11

2. Use the Venn Diagram below to determine the probability that a person randomly selected from this group has:



total # = 40

a) only a dog $\frac{15}{40}$

b) at least one cat or dog $\frac{15+4+9}{40} = \frac{28}{40}$

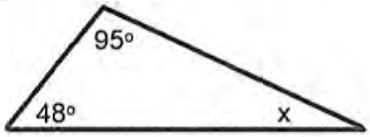
c) both a cat and a dog $\frac{4}{40}$

d) either a cat or a dog but not both $\frac{15+9}{40} = \frac{24}{40}$

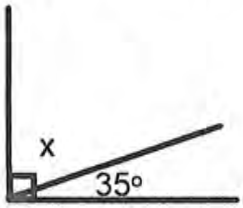
Station H

1. Determine the measure of angle x. How do you know?

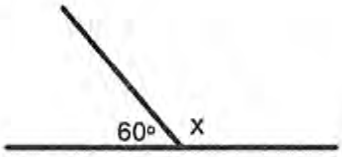
a)



b)

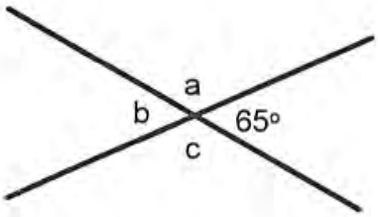


c)

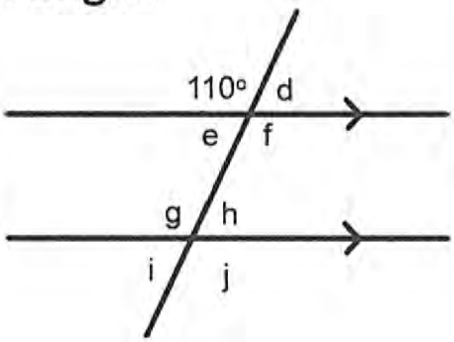


2. Determine the value of each unknown angle.

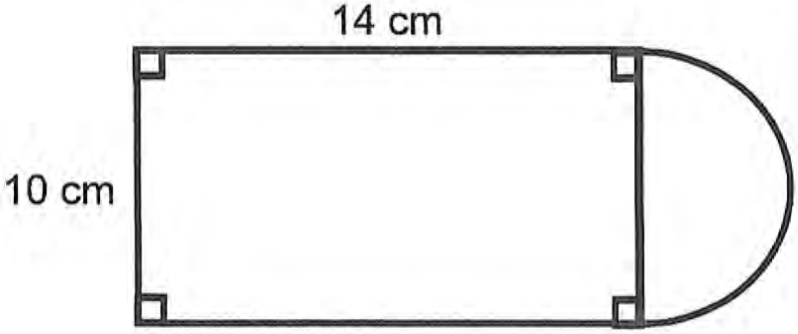
a)



b)



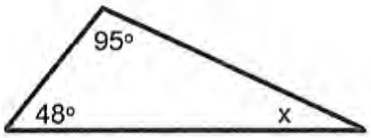
3. Determine the perimeter and area of the figure show.
$\left(A = lw,\ A = \pi r^2,\ C = 2\pi r\right)$



Station H

1. Determine the measure of angle x. How do you know?

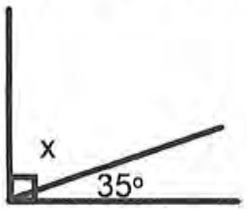
a)



$X = 180 - 48 - 95$

$X = 37°$

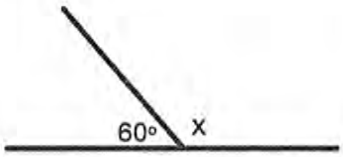
b)



$X = 90 - 35$

$X = 55°$

c)

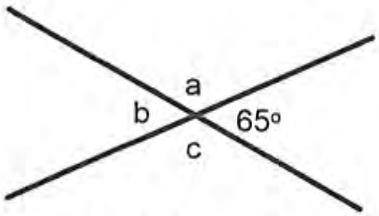


$X = 180 - 60$

$X = 120°$

2. Determine the value of each unknown angle.

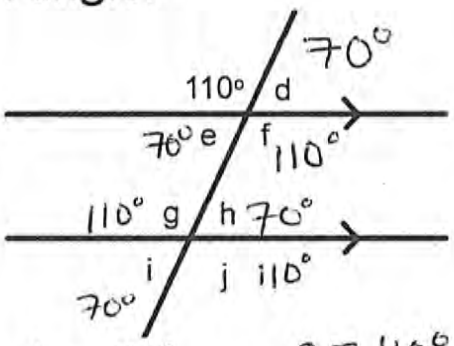
a)



$b = 65°$ $a = 180 - 65$ $c = 115°$

$a = 115°$

b)



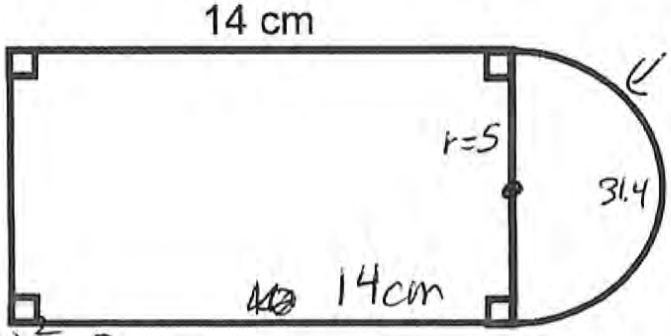
$d = 70°$ $g = 110°$ $j = 110°$

$e = 70°$ $h = 70°$

$f = 110°$ $i = 70°$

3. Determine the perimeter and area of the figure show.

$\left(A = lw,\ A = \pi r^2,\ C = 2\pi r\right)$



15.7

$P = 14 + 10 + 14 + 31.4$

$= 53.7$

$C = 2(\pi)r$

$= 2(\pi)(5)$

$\doteq 31.4 \div 2$

$=$

$A = 10(14) + \pi(5)^2 \div 2$

$= 140 + 7.85$

$= 147.85$