

A. Write the STANDARD NUMERALS

a. $30 + 5\,000 + 6 + 0.2 + 10$

5046.2

b. $5\,000\,000 + 20\,000 + 7\,000 + 60$

5027060

c. $4 + 0.03 + 100 + 0.7 + 90$

194.73

d. Twenty four million three hundred seven thousand

24307000

e. Six hundred forty six thousand four hundred one and twenty five hundredths

646401.65B. Write in WORD FORM

a. 3 456 702

3 million 4 hundred fifty-six thousand 7 hundred two

b. 43.07

forty three and seven hundredths

c. 5.076

five and seventy six thousandthsC. Write in EXPANDED FORM

e.g. $35.6 = 3 \times 10 + 5 \times 1 + 6 \times 0.1$

a. 789.7

$7 \times 100 + 8 \times 10 + 9 \times 1 + 7 \times 0.1$

b. 47.05

$4 \times 10 + 7 \times 1 + 5 \times 0.01$

c. 7 067 501

$7 \times 1\,000\,000 + 6 \times 10\,000 + 7 \times 1\,000 + 5 \times 100 + 1 \times 1$

D. Write the STANDARD NUMERALS

e.g. $4 \times 10\,000 + 6 \times 1\,000 + 5 \times 10 + 3 \times 0.1 = 46050.3$

a. $5 \times 10 + 3 \times 1 + 8 \times 0.1 + 9 \times 0.01$

53.89

b. $3 \times 1\,000\,000 + 7 \times 10\,000 + 4 \times 1\,000 + 6 \times 100$

3074600

E. **ROUND** to the indicated **PLACE VALUE**

- a. 39.68 (tenth) 39.7
 b. 2 794 (thousand) 3000
 c. 5 376 289 (ten thousand) 5380 000

F. Complete the Chart

	$\times 100$	$\times 0.1$	$\div 1\ 000$	$\div 0.01$
27.8	2780	2.78	0.0278	2780
5.3	530	0.53	0.0053	530
215	21500	21.5	0.215	21500
9	900	0.9	0.009	900

G. **MULTIPLY**

a.
$$\begin{array}{r} 38275 \\ \times 214 \\ \hline 153100 \\ 382750 \\ 7655000 \\ \hline 8190850 \end{array}$$

b.
$$\begin{array}{r} 69.307 \\ \times 3.6 \\ \hline 415842 \\ 2079210 \\ \hline 249.5052 \end{array}$$

c.
$$\begin{array}{r} 5273 \\ \times 0.009 \\ \hline 47.457 \end{array}$$

d.
$$\begin{aligned} &4 \times 3278 \times 25 \\ &= 4 \times 25 \times 3278 \\ &= 100 \times 3278 \\ &= 327800 \end{aligned}$$

H. **DIVIDE** (Round c, d and e to the nearest hundredth)

a.
$$12 \overline{) 39812} \quad 3317.67$$

b.
$$2.3 \overline{) 15.87} \quad 6.9$$

c.
$$1.5 \overline{) 329.7} \quad 219.8$$

I. Calculate using order of operations (BEDMAS)

a. $(12 + 3) \div 5$
 $= 15 \div 5$
 $= 3$

b. $(5-2)^2 \times 3$
 $= 3^2 \times 3$
 $= 9 \times 3$
 $= 27$

c. $5 + 2^2 \times 3$
 $= 5 + 4 \times 3$
 $= 5 + 12$
 $= 17$

d. $3 \times 3^2 + 4 - 2$
 $= 3 \times 9 + 4 - 2$
 $= 27 + 4 - 2$
 $= 29$

e. $(2^3 - 5)^2 + 3$
 $= (8 - 5)^2 + 3$
 $= 3^2 + 3$
 $= 9 + 3$
 $= 12$

f. $2^3 + 2 + 3 \times (8 - 3)^2$
 $= 8 + 2 + 3 \times 5^2$
 $= 8 + 2 + 3 \times 25$
 $= 4 + 75$
 $= 79$

J. Insert brackets to make each statement true:

a. $20 \div (4+1) - 2 = 2$
 $20 \div 5 - 2 = 2$
 $4 - 2 = 2$
 $2 = 2$

b. $(12-3) \times (2+6) = 72$
 $9 \times 8 = 72$
 $72 = 72$

c. $(6+15) \div 3 \times 4 = 28$
 $21 \div 3 \times 4 = 28$
 $7 \times 4 = 28$
 $28 = 28$

K. Record the divisibility of each number (YES or NO):

Divisible	By 2	By 3	By 4	By 5	By 6	By 9
432	YES	YES	YES	NO	YES	YES
2715	NO	YES	NO	YES	NO	NO
4824	YES	YES	YES	NO	YES	YES
1270	YES	NO	NO	YES	NO	NO

L. Circle the **PRIME NUMBERS** and box the **COMPOSITE NUMBERS**

14 (23) (7) 9 38 (5) 72 105 (41) 39

M. List the **FACTORS**

16 1, 2, 4, 8, 16

40 1, 2, 4, 5, 8, 10, 20, 40

27 1, 3, 9, 27

72 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72

Give the **COMMON FACTORS** for these numbers

18 1, 2, 3, 6, 9, 18

25 1, 5, 25

24 1, 2, 3, 4, 6, 8, 12, 24

45 1, 3, 5, 9, 15, 45

Give the **GREATEST COMMON FACTOR** for these numbers

12 & 20 4

15 & 24 3

18 & 30 6

List some multiples for each number pair. Circle the **LOWEST COMMON MULTIPLE**

6 12, 18, 24, (30)

4 8, (12), 16, 20

12 (24), 36, 48

5 10, 15, 20, 25, (30)

3 6, 9, (12)

8 16, (24)

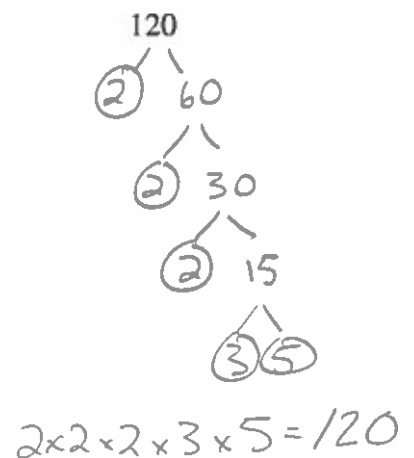
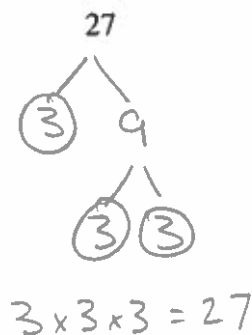
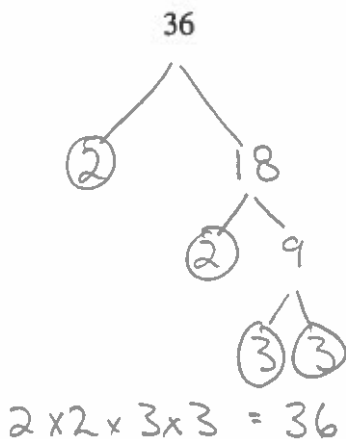
Give the **L.C.M.** for these numbers

6, 12, 8 24

5, 4, 3 60

2, 3, 5 30

N. Complete the **FACTOR TREES** (Remember final factors should be **PRIME NUMBERS**)



O. EXPONENTS

Evaluate the POWERS

$$2^4 = \frac{2 \times 2 \times 2 \times 2}{=} = \underline{16}$$

$$10^5 = \frac{10 \times 10 \times 10 \times 10 \times 10}{=} = \underline{100000}$$

$$6^2 = \frac{6 \times 6}{=} = \underline{36}$$

$$4^3 = \frac{4 \times 4 \times 4}{=} = \underline{64}$$

Write as an EXPONENT

$$3 \times 3 \times 3 \times 3 \quad \underline{3^4} \quad 4 \times 4 \times 4 \times 4 \times 4 \quad \underline{4^5} \quad 2 \times 2 \times 2 \times 2 \times 2 \times 2 \quad \underline{2^6}$$

Write these factors as EXPONENTS

$$48 = 2 \times 2 \times 2 \times 2 \times 3 = \underline{2^4 \times 3}$$

$$36 = 2 \times 2 \times 3 \times 3 = \underline{2^2 \times 3^2}$$

P. FRACTIONS

Write in simplest form:

$$\frac{12}{16} = \frac{3}{4}$$

$$\frac{25}{30} = \frac{5}{6}$$

$$\frac{32}{48} = \frac{2}{3}$$

$$\frac{23}{4} = 5 \frac{3}{4}$$

$$\frac{22}{6} = 3 \frac{2}{3}$$

Change to an improper fraction:

$$3 \frac{1}{4} = \frac{13}{4}$$

$$7 \frac{2}{3} = \frac{23}{3}$$

$$3 \frac{5}{8} = \frac{29}{8}$$

Change to a mixed number:

$$\frac{14}{3} = 4 \frac{2}{3}$$

$$\frac{25}{2} = 12 \frac{1}{2}$$

$$\frac{18}{5} = 3 \frac{3}{5}$$

$$\frac{36}{8} = 4 \frac{1}{2}$$

Write in order from least to greatest:

$$\frac{3}{4}, \frac{7}{10}, \frac{1}{2}, \frac{13}{15}$$

$$\frac{45}{60}, \frac{42}{60}, \frac{30}{60}, \frac{52}{60}$$

$$\frac{1}{2}, \frac{7}{10}, \frac{3}{4}, \frac{13}{15}$$

$$\textcircled{3} \quad \textcircled{2} \quad \textcircled{1} \quad \textcircled{4}$$

Change these decimals to fractions:

$$0.6 = \frac{6}{10} \\ = \frac{3}{5}$$

$$0.55 = \frac{55}{100} \\ = \frac{11}{20}$$

$$0.26 = \frac{26}{100} \\ = \frac{13}{50}$$

$$2.25 = 2 \frac{25}{100} \\ = 2 \frac{1}{4}$$

Add:

$$\frac{3}{4} + \frac{5}{6}$$

$$= \frac{9}{12} + \frac{10}{12}$$

$$= \frac{19}{12}$$

$$\frac{2}{3} + \frac{4}{5} + \frac{1}{2}$$

$$= \frac{20}{30} + \frac{24}{30} + \frac{15}{30}$$

$$= \frac{59}{30}$$

$$\frac{5}{8} + \frac{2}{3} + \frac{1}{4}$$

$$= \frac{15}{24} + \frac{16}{24} + \frac{6}{24}$$

$$= \frac{37}{24}$$

$$1\frac{3}{8} + 3\frac{4}{5}$$

$$= 1\frac{15}{40} + 3\frac{32}{40}$$

$$= 4\frac{47}{40}$$

$$= 5\frac{7}{40}$$

$$4\frac{5}{12} + 2\frac{3}{4} + 1\frac{2}{3}$$

$$= 4\frac{5}{12} + 2\frac{9}{12} + 1\frac{8}{12}$$

$$= 7\frac{22}{12}$$

$$= 8\frac{10}{12} = 8\frac{5}{6}$$

OR

$$\frac{53}{12} + \frac{11}{4} + \frac{5}{3}$$

$$= \frac{53}{12} + \frac{33}{12} + \frac{20}{12}$$

$$= \frac{106}{12} = \frac{53}{6}$$

Subtract:

$$\frac{7}{12} - \frac{3}{8}$$

$$= \frac{14}{24} - \frac{9}{24}$$

$$= \frac{5}{24}$$

$$\frac{4}{5} - \frac{2}{3}$$

$$= \frac{12}{15} - \frac{10}{15}$$

$$= \frac{2}{15}$$

$$\frac{3}{4} - \frac{2}{5}$$

$$= \frac{15}{20} - \frac{8}{20}$$

$$= \frac{7}{20}$$

$$2\frac{1}{4} - \frac{5}{8}$$

$$= \frac{9}{4} - \frac{5}{8}$$

$$= \frac{18}{8} - \frac{5}{8} = \frac{13}{8}$$

$$3\frac{1}{2} - 1\frac{2}{3}$$

$$= \frac{7}{2} - \frac{5}{3}$$

$$= \frac{21}{6} - \frac{10}{6}$$

$$= \frac{11}{6}$$

$$4\frac{3}{8} - 2\frac{5}{6}$$

$$= \frac{35}{8} - \frac{17}{6}$$

$$= \frac{105}{24} - \frac{68}{24}$$

$$= \frac{37}{24}$$

Multiply:

$$\frac{3}{5} \times \frac{5}{6} \times \frac{2}{3}$$

$$= \frac{1}{1} \times \frac{1}{1} \times \frac{1}{3}$$

$$= \frac{1}{3}$$

$$1\frac{4}{5} \times 10$$

$$= \frac{9}{5} \times \frac{10}{1}$$

$$= 18$$

$$\frac{2}{3} \times \frac{5}{12} \times \frac{7}{10}$$

$$= \frac{1}{3} \times \frac{1}{6} \times \frac{7}{2}$$

$$= \frac{7}{36}$$

$$3\frac{3}{5} \times 2\frac{7}{9}$$

$$= \frac{18}{5} \times \frac{25}{9}$$

$$= 10$$

$$1\frac{5}{8} \times 5\frac{1}{3}$$

$$= \frac{13}{8} \times \frac{16}{3}$$

$$= \frac{26}{3}$$

Divide:

$$\frac{3}{5} \div \frac{7}{10}$$

$$= \frac{3}{5} \times \frac{10}{7}$$

$$= \frac{6}{7}$$

$$\frac{1}{10} \div 6$$

$$= \frac{1}{10} \times \frac{1}{6}$$

$$= \frac{1}{60}$$

$$4 \div \frac{3}{4}$$

$$= \frac{4}{1} \times \frac{4}{3}$$

$$= \frac{16}{3}$$

$$1\frac{1}{3} \div \frac{3}{8}$$

$$= \frac{4}{3} \times \frac{8}{3}$$

$$= \frac{32}{9}$$

$$2\frac{2}{3} \div 3\frac{1}{3}$$

$$= \frac{8}{3} \div \frac{10}{3}$$

$$= \frac{4}{5}$$

$$\frac{1}{2} \div 1\frac{1}{4}$$

$$= \frac{1}{2} \div \frac{5}{4}$$

$$= \frac{1}{2} \times \frac{4}{5}$$

$$= \frac{2}{5}$$

Use the order of operations to complete these calculations:

$$\frac{2}{3} + \frac{1}{2} \times \frac{3}{4}$$

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

$$= \frac{16}{24} + \frac{9}{24}$$

$$= \frac{25}{24}$$

$$\frac{4}{7} \div \frac{3}{7} + \frac{2}{3} \div \frac{5}{3}$$

$$= \frac{4}{7} \times \frac{7}{3} + \frac{2}{3} \times \frac{3}{5}$$

$$= \frac{4}{3} + \frac{2}{5}$$

$$\frac{1}{5} \times 10 - \frac{1}{4} \times 8 + 11$$

$$= \frac{1}{5} \times \frac{10}{1} - \frac{1}{4} \times \frac{8}{1} + 11$$

$$= 2 - 2 + 11$$

$$= 11$$

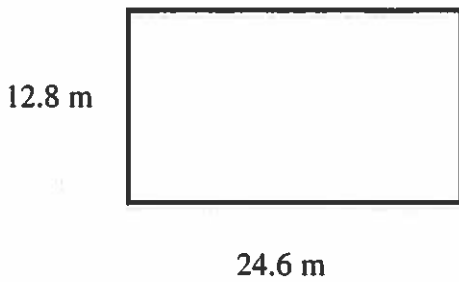
$$= \frac{20}{15} + \frac{6}{15}$$

$$= \frac{26}{15}$$

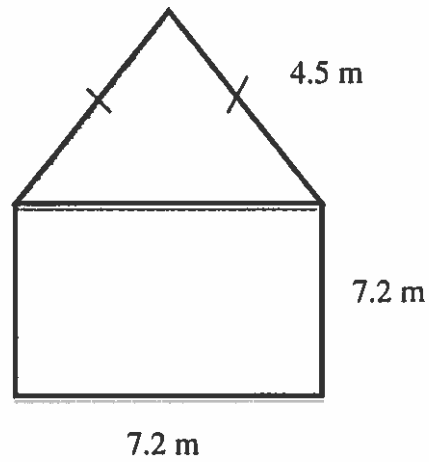
Q. Calculate the PERIMETER

a.

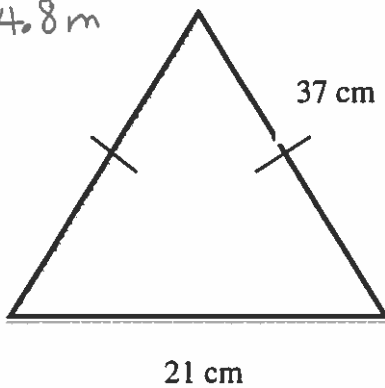
c.



$$\begin{aligned} P &= 2b + 2h \\ &= 2 \times (24.6) + 2 \times 12.8 \\ &= 49.2 + 25.6 \\ &= 74.8 \text{ m} \end{aligned}$$



$$\begin{aligned} P &= \text{Sum of sides} \\ &= 7.2 + 7.2 + 7.2 + 4.5 + 4.5 \\ &= 30.6 \text{ m} \end{aligned}$$



$$\begin{aligned} P &= \text{Sum of sides} \\ &= 37 + 37 + 21 \\ &= 95 \text{ cm} \end{aligned}$$

d. John ran four times around a SQUARE playground. The total distance he ran was 216 m. How long is the playground on one side?

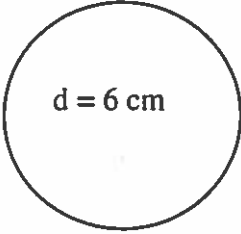
Square playground \therefore all sides are equal

$$216 \div 4 = 54 \text{ m}$$

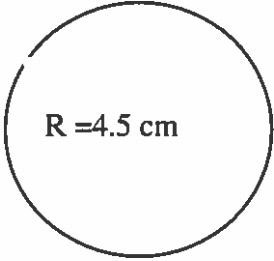
$$54 \div 4 = 13.5 \text{ m}$$

\therefore one side of the square is 13.5 m

Calculate the circumference

e.  $d = 6 \text{ cm}$

$$\begin{aligned} C &= \pi \times \text{dia} \\ &= \pi \times 6 \\ &= 18.849 \\ &= 18.85 \text{ cm} \end{aligned}$$

f.  $R = 4.5 \text{ cm}$

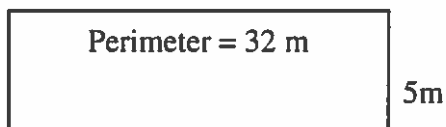
$$\begin{aligned} C &= \pi \times \text{dia} \\ &= \pi \times r \times 2 \\ &= \pi \times 4.5 \times 2 \\ &= 28.274 \\ &= 28.27 \text{ cm} . \end{aligned}$$

h. If the circumference is 37.68 cm, what is the radius?

$$\begin{aligned} C &= \pi \times \text{dia} \\ \frac{37.68}{\pi} &= \frac{\pi \times \text{dia}}{\pi} \\ 11.99 &= \text{dia} \end{aligned}$$

$$\begin{aligned} r &= \text{dia} \div 2 \\ &= 11.99 \div 2 \\ &= 5.996 \\ &= 6 \text{ cm} . \end{aligned}$$

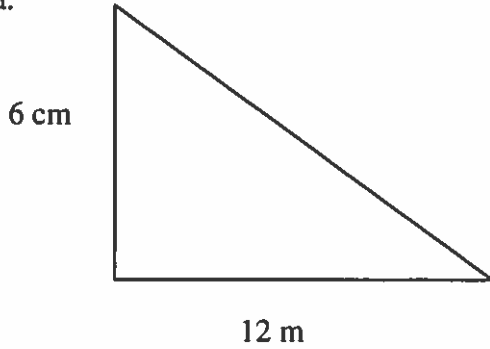
i. What is the base of the rectangle below.



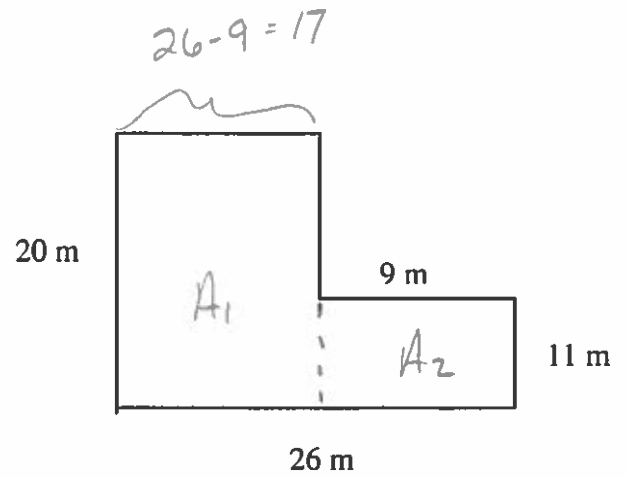
$$\begin{aligned} p &= 2b + 2h \\ 32 &= 2b + 2 \times 5 \\ 32 &= 2b + 10 \\ 32 - 10 &= 2b + 10 - 10 \\ 22 &= 2b \end{aligned}$$
$$\begin{aligned} \frac{22}{2} &= \frac{2b}{2} \\ 11 &= b \end{aligned}$$

R. Calculate the AREA:

a.

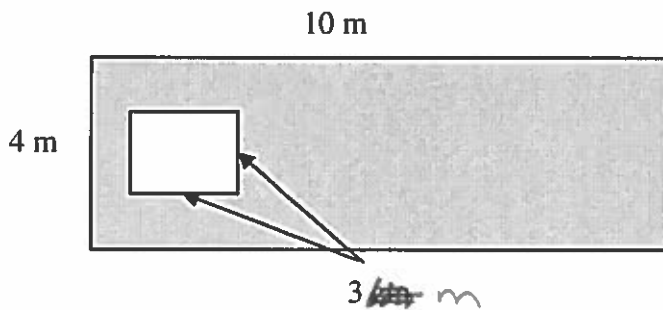


$$\begin{aligned} A &= \frac{b \times h}{2} \\ &= \frac{12 \times 6}{2} \\ &= \frac{72}{2} \\ &= 36 \text{ m}^2 \end{aligned}$$



$$\begin{aligned} A_T &= A_1 + A_2 \\ &= b \times h + b \times h \\ &= 20 \times 17 + 9 \times 11 \\ &= 340 + 99 \\ &= 439 \text{ m}^2 \end{aligned}$$

a



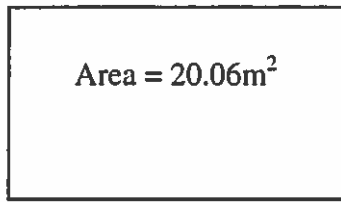
Calculate the area of the shaded part of the diagram

$$\begin{aligned} A_s &= A_T - A_{\square} \\ &= b \times h - b \times h \\ &= (10 \times 4) - (3 \times 3) \\ &= 40 - 9 \\ &= 31 \text{ m}^2 \end{aligned}$$

Find the missing measurement:

a.

$$b = 5.9$$



$$h = ?$$

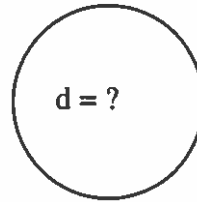
$$A = b \times h$$

$$20.06 = 5.9 \times h$$

$$\frac{20.06}{5.9} = \frac{5.9 \times h}{5.9}$$

$$h = 3.4 \text{ m}$$

b.



$$A = 50.24 \text{ cm}^2$$

$$r = \sqrt{\frac{A}{\pi}}$$

$$r = \sqrt{\frac{50.24}{\pi}}$$

$$r = \sqrt{15.99}$$

$$r = 4$$

$$d = 2 \times 4$$

$$d = 8$$

Solve the following problem:

A farmer has 60 m of fencing to close in his chickens in a rectangular coop. Draw 3 different coops that he could make. Record the length and width of each coop. Calculate the area of each. What are the measurements of the coop which gives him the greatest possible area?

COOP 1

5 by 25

$$P = 60$$

$$A = 125 \text{ m}^2$$

COOP 2

10 by 20

$$P = 60$$

$$A = 200 \text{ m}^2$$

COOP 3

15 by 15

$$P = 60$$

$$A = 225 \text{ m}^2$$

COOP 4

20 x 10

$$P = 60$$

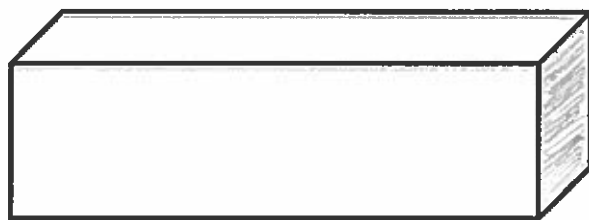
$$A = 200 \text{ m}^2$$

∴ best measurements would be a square at 15 x 15

R. Find the VOLUME of these shapes.

a.

3.5 cm



3.5 cm

15 cm

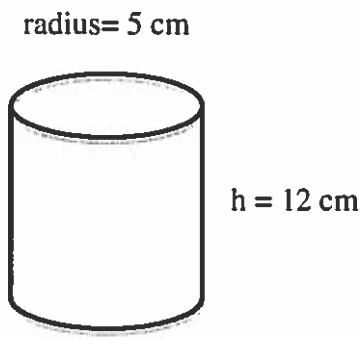
$$V = A \times \text{depth}$$

$$= b \times h \times \text{depth}$$

$$= 3.5 \times 3.5 \times 15$$

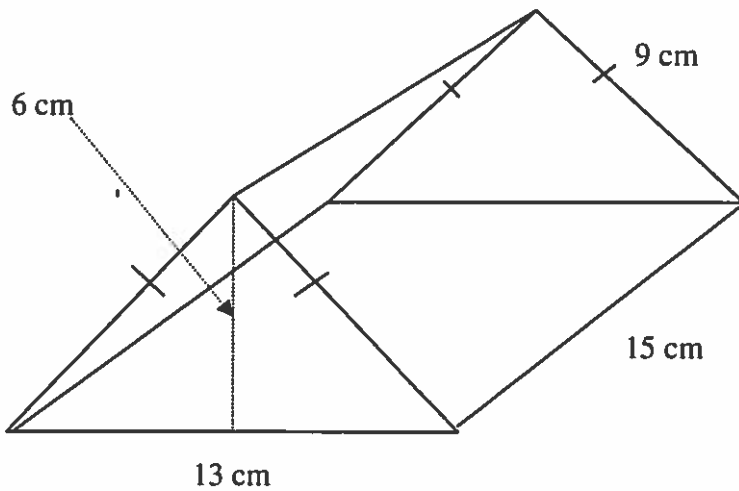
$$= 183.75 \text{ cm}^3$$

b.



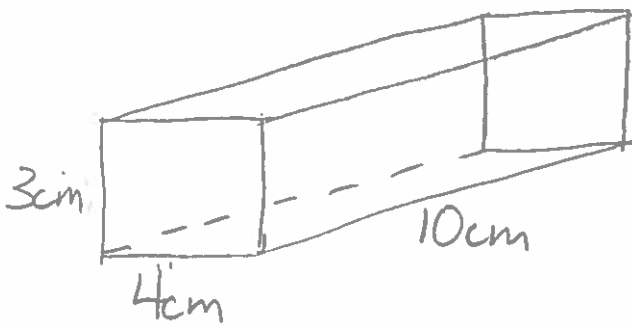
$$\begin{aligned}
 V &= A_F \times \text{depth} \\
 &= \pi r^2 \times \text{depth} \\
 &= \pi \times 5 \times 5 \times 12 \\
 &= 942.478 \\
 &= 942.48 \text{ cm}^3
 \end{aligned}$$

c.



$$\begin{aligned}
 V &= A_F \times \text{depth} \\
 V &= \frac{b \times h}{2} \times \text{depth} \\
 &= \frac{13 \times 6}{2} \times 15 \\
 &= 585 \text{ cm}^3
 \end{aligned}$$

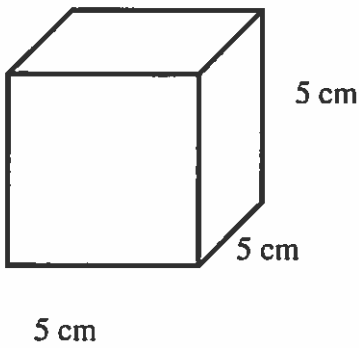
d. Draw a rectangular prism. Write on it the measurements which would make it have a volume of 120cm³.



$$\begin{aligned}
 V &= A_F \times \text{depth} \\
 &= b \times h \times \text{depth} \\
 &= 4 \times 3 \times 10 \\
 &= 120 \text{ cm}^3
 \end{aligned}$$

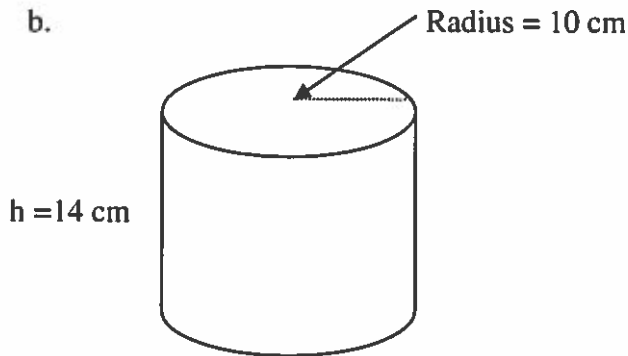
S. Find the **SURFACE AREA** of these shapes

a.



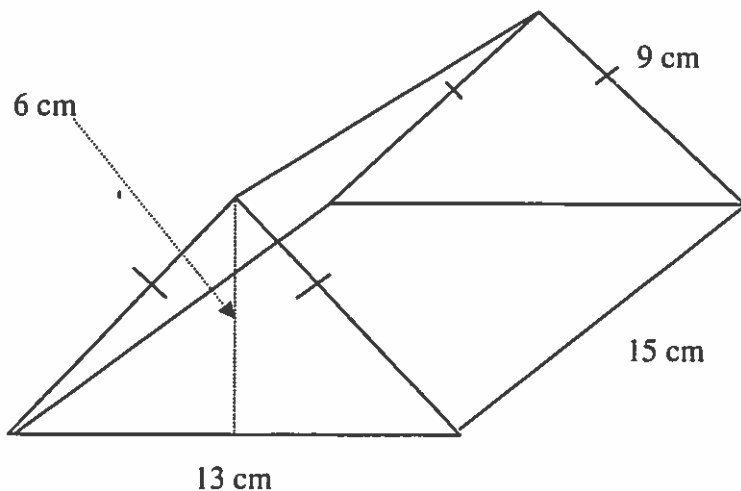
$$\begin{aligned}
 SA_{\text{CUBE}} &= A_F \times 6 \\
 &= b \times h \times 6 \\
 &= 5 \times 5 \times 6 \\
 &= 150 \text{ cm}^2
 \end{aligned}$$

b.



$$\begin{aligned}
 SA &= C_F \times \text{depth} + A_F \times 2 \\
 &= \pi \times \text{dia} \times \text{depth} + \pi r^2 \times 2 \\
 &= \pi \times 20 \times 14 + \pi \times 10 \times 10 \times 2 \\
 &= 879.646 + 628.319 \\
 &= 1507.965 \text{ cm}^2 \\
 &\approx 1507.97 \text{ cm}^2
 \end{aligned}$$

c.



$$\begin{aligned}
 SA &= P_F \times \text{depth} + A_F \times 2 \\
 &= (\text{SUM OF SIDES}) \times \text{depth} + \frac{b \times h}{2} \times 2 \\
 &= (9 + 9 + 13) \times 15 + \frac{13 \times 6}{2} \times 2 \\
 &= 31 \times 15 + 78 \\
 &= 543 \text{ cm}^2
 \end{aligned}$$

T. Angles x and y are complementary angles. If angle x is 72° , what is the size of angle y?

$$90 - 72 = 18^\circ \quad \angle y = 18^\circ$$

Angle a and angle b are opposite angles. If angle is 65° , what is the measure of angle b?

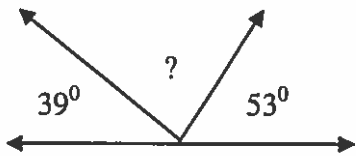
$$\angle b = 65^\circ$$

Angles q and w are supplementary angles. If angle q is 105° , what is the measure of angle w?

$$180 - 105 = 75^\circ \quad \angle w = 75^\circ$$

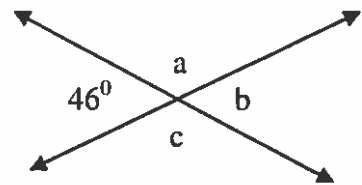
Calculate the size of the missing angles

a.



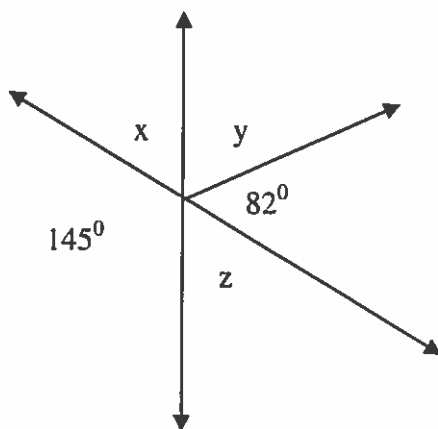
$$\begin{aligned} ? &= 180^\circ - (39 + 53) \\ &= 88^\circ \end{aligned}$$

b.



$$a = 134^\circ \quad b = 46^\circ \quad c = 134^\circ$$

c.



$$x = 35^\circ$$

$$y = 63^\circ$$

$$z = 35^\circ$$