MrF

**GRADE 10 ESSENTIAL
PRACTICE QUESTIONS**

Name: _____

Date: _____

Multiple Choice Instructions:
- Use your single sheet course reference notes that you have prepared.
- Use a calculator to its full effect
- Conversion factors have been / will be provided.
- Geometric Formulae have been / will be provided.
- Select the best or closest answer.
- Use an accurate value for Pi (π)
- Each question is 2 marks. Guess if necessary! Always select an answer!

1.   **6.45% of $1325** is:

a.   **$64.50**   b.   **$205.43**   c.   **$85.46**   d.   **$96 exactly**

2.   Mathilde gets paid at an hourly rate of **$13.50** per hour.   She works the following hours in one week. What is her gross pay if overtime is paid at **time-and-a-half** after **8** hours in any one day.

Day	M	T	W	Th	F
Hours	7	10	5	10	4

a.   **$513**   b.   **$486**   c.   **$1350.00**   d.   **$162.00**

3.   Brian has a gross income of **$572** per week. He contributes **$45**/week to an **RRSP**. His combined income tax rate is **22%.** How much income tax is deducted from his pay cheque?

a.   **$125.84**   b. $**115.94**   c.   **$9.90**   d.   **$527.00**

4.   The sum of **two** numbers is **14** their **difference** is **5**. Find the two numbers.

a.   (9.5, 4.5)   b.   (7, 7)   c.   (14, 9)   d.   (7,12)

5.   Derek gets paid at an hourly rate of **$16.50** per hour. He works the following hours in one week. What is his gross pay if **overtime** is paid at **time-and-a-half** after **40 hours** in any one week.

Day	M	T	W	Th	F
Hours	10	8	9	12	4

a.   **$43**   b.   **$709.50**   c.   **$300.00**   d.   **$734**

6.   If Jason has $485 a week taxable income, but $135 is taken off in combined income tax(es), what is his combined Provincial and Federal Income tax rate?

a.   22%   b.   27.8%   c.   135%   d.   3.59%

7.   If three pizzas and a 2-litre coke for $4.50 costs $40.50 (no tax) then how much does one pizza cost?

a. $12   b. $36   c.   13.50   d.   13%

8.   Carrie wants to put a gold coloured cloth ribbon around the perimeter of her graduation certificate. The certificate is rectangular, it is 9 inches long and the width is $^2/_3$ of the length. How many inches of gold ribbon must Carrie buy?

a.   15   b.   30   c.   54   d.   6

9.   If gold ribbon is $3.17 per foot, how much will Carrie have to pay?

a. $95.10   b. $38.04   c. $31.70   d. $7.93

10.   If Josh has three different little toy soldiers, how many ways can he arrange them in a line so they can march off?

a.   3   b.   2   c.   6   d.   5

11.	The Canada Pension Plan (**CPP**):

a.	is a contributory plan to which workers pay a portion of their employment income;

b.	is a defined benefit financial plan that that is better than a pension from the city;

c.	has been enjoyed by our progressive society for almost 100 years now;

d.	is a voluntary plan that can be declined using a T9C tax form.

12.	An example of a deduction from employment income is:

a.	CPP benefit

b.	CCB (Canada Child Benefit) benefit

c.	income tax(es)

d.	Goods and Services Tax (GST)

13.	If Jayson goes to work at 08:45 and leaves work at 16:15 and has an unpaid 45 minute lunch break; for what duration of time does he get paid?

a.	8 hours	**b.**	5 hours 15 minutes

c.	15 hours	**d.**	6 hours 45 minutes

14.	Triangles are important because:

a.	every polygon can be made of triangles

b.	three is a sacred number

c.	they are pointy and pretty

d.	they always make a trapezoid when added to a rectangle

15. According to the distributive law of arithmetic:

    a. $a*(b + c) = abc$ **b.** $a*(b + c) = a*b + a*c$

    c. $a^2 + b^2 = c^2$ **d.** $6^2 = 49$

16. 17 metres is the equivalent of:

    a. 170 cm   **b.** 170 mm   **c.** 5.18 ft   **d.** 55.76 ft

17. A car might weigh:

    a. 1200 kg   **b.** 175 kilograms

    c. 450 litres   **d.** 415 lbs

18. $1\frac{1}{4} + 2\frac{3}{8} =$

    a. 4.75   b. $3\frac{5}{8}$ c. $3\frac{4}{12}$ d. $3\frac{1}{3}$
    when properly reduced

19. The length of side c is:

    a. 9.9 yards

    b. 14 yards

    c. 7 yards

    d. 49 square yards
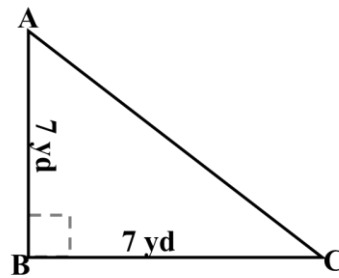
Not to scale

20.   The circumference of the circle is:

    a.   **201 cm**

    b.   **64 cm^2**

    c.   **50 cm**

    d.   **16π cm exactly**
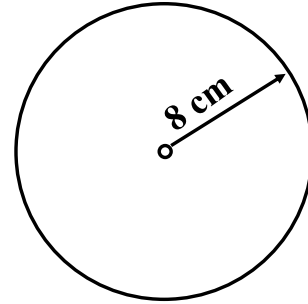
21.   57 inches is how many feet and inches?

    a.   3 feet 22 inches   **b.**   5 feet 7 inches

    c.   5.7 feet   **d.**   4' 9"

22.   4.95% of $630 is:

    a. $31.19   **b.** $634.95   **c.**   non-taxable   **d.** $3118.50

23.   Evaluate: $6 + 4^2 - 7$

    a.   0   **b.**   15   **c.** $\sqrt{(6-7)}$ **d.**   3

24.   Half the length of a board that measures 7 ft 9 inches in length is:

    a.   3'10$\frac{1}{2}$"   b.   3.95 ft   c.   39.5 inches   d. 4 ft

25.   Mike is going to paint one wall in his bedroom, the wall is 8 ft high and 12 feet wide. There is a window that measures 3 feet by 5 feet in the wall. How much area of wall does he have to paint.

    a.   81 ft^2 b.   (40 – 15) ft   c.   35 ft^2 d.   40 ft^2
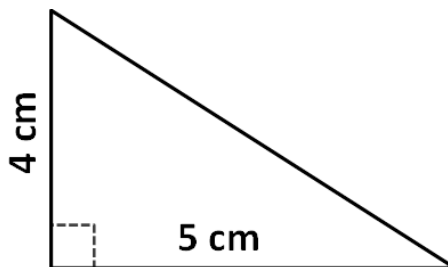
26.   Wanda is painting one wall in her bedroom. The wall is 3 m long and 2.7 m high. She has a window on that wall that measures 80 cm wide by 60 cm high. What area of wall does Wanda have to paint?

    a.   145.7   b.   38,880 cm^2 c.   8.1 m^2 d.   7.62 m^2

27. The area of this triangle is:

   a. 20 cm^2
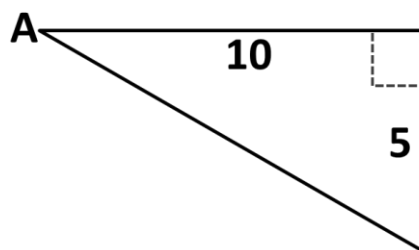
   b. 9 cm^2

   c. $\sqrt{41}$ cm

   d. 10 cm^2

28. The **area** of this circle is:

   a. 78.5 square metres

   b. 314 m^2

   c. 31.42 m

   d. 5 m^2
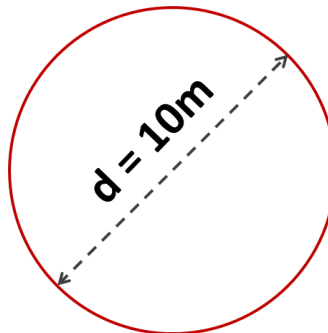
29. The measure of angle A is:

   a. 30°

   b. 60°

   c. 26.6°

   d. 0.0087°

30. The Greatest Common Factor (GCF) of 56 and 49 is?

   a. 56   b. 49   c. 392   d. 7

31. The Lowest Common Multiple (LCM) [also known as the Lowest Common Denominator , LCD, when used in a fraction] of 8 and 12 is:

   a. 96   b. 4   c. 24   d. 20

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OPEN RESPONSE

- Show work for best marks as always and to ensure you are following the steps and can readily re-check
- Make sure the answer makes sense in the real world
- Use accurate value for Pi
- Round decimal answers to nearest hundredth unless otherwise indicated.
- Use your reference notes
- Formulae and conversion factors will be provided
- Diagrams are not drawn to scale
- Value of the question in marks is indicated in box to left.

10 1. Jared has been hired to work a full-time job at a retail outlet. His Regular pay rate is *$15.00/ hr*. Any hours worked over **40** hours a week are paid at *time and a half*. During his first week, Jared sold **$12,250** in goods, and worked **44** hours. He makes a **3.5%** commissions on his sales over **$8,000.00**.

His **R**egistered **R**etirement **S**avings **P**lan (**RRSP**) contributions are **$70.00** per week. There is **no** union dues to pay or company retirement plan to put money into.
(*FYI*: If you put away $70 a week for 40 years of working you will have $607,148.10 in your expected retirement portfolio)

Employment Insurance (EI) deductions are **1.92%** of the *gross* pay. **CPP Contributions** are 4.95% of *Gross* Pay. Income tax is deducted at a combined Provincial & Federal rate of 21% of his Taxable Income. He pays **$10.00** for weekly parking and **$8.00** a week for the coffee fund.

Show what all the detailed calculations for computing his Net 'take home' pay.

Use the template provided if necessary

4 2. Find the LCM (*aka* LCD) of:

a. 8 and 12   b. 7 and 5

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3. Simplify:

10

a. $3\frac{1}{4} + 5\frac{1}{8} =$

b. $4\frac{3}{5} - 2\frac{1}{2} =$

c. $\dfrac{5}{7} + \dfrac{2}{5} =$

d. $4\frac{1}{4} + 2\frac{1}{2} =$

e. **14:45 + 2:45 =**

f. **13:20 – 3:45 =**

g. 4 ft 8 in + 6ft 8 in = _____

h. (4 ft 7in) / 2 =

i. $4\frac{3}{8} * 2\frac{1}{4} =$

j. $8\frac{3}{4} \div 2 =$

4. Complete the table (convert metres to the nearest 0.01 or better, express imperial units as feet and nearest inch where indicated).

20

metres (m)	feet (ft) and inches
1	3.2808 just use 3.28
3	_____ft _____ in
4.5	_____ft _____ in
	4ft 9 inches
	450 ft
	70ft 6 in
400 m	_____ft
40 m	_____ft
	438 ft
	34 ft
	5 ft 11 in
1.45 m	_____ft _____ in

5. Complete the table (convert kilograms to nearest 0.01, calculate ounces to the nearest oz)

pounds (lb) and oz	kilograms (kg)
2.205 just use 2.2	1
3.3 lb *no such thing really*	
6.6 lb *no such thing really*	
	4.4 kg
	5.9 kg
	7.95 kg
6 lb 11 oz	
9 lb 3 oz	
	71.42 kg
	36.09 kg
34 lbs 9 oz	

6.   Find the measurement indicated on this metric ruler:

6
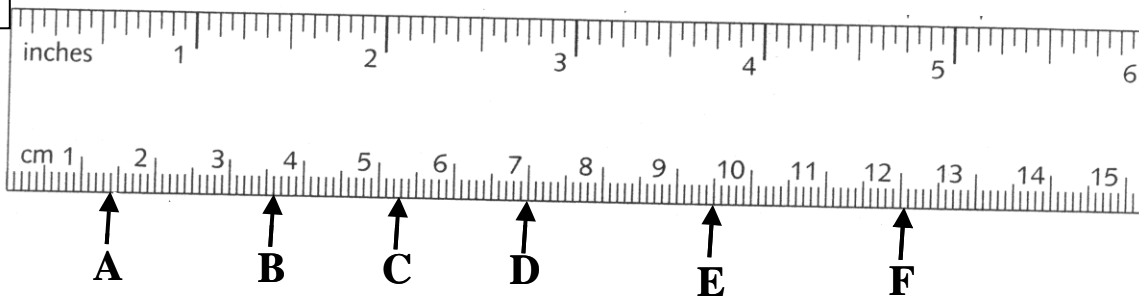
	A	B	C	D	E	F
cm						
mm						

7.   Find the indicated measurement to the best precision you can read:
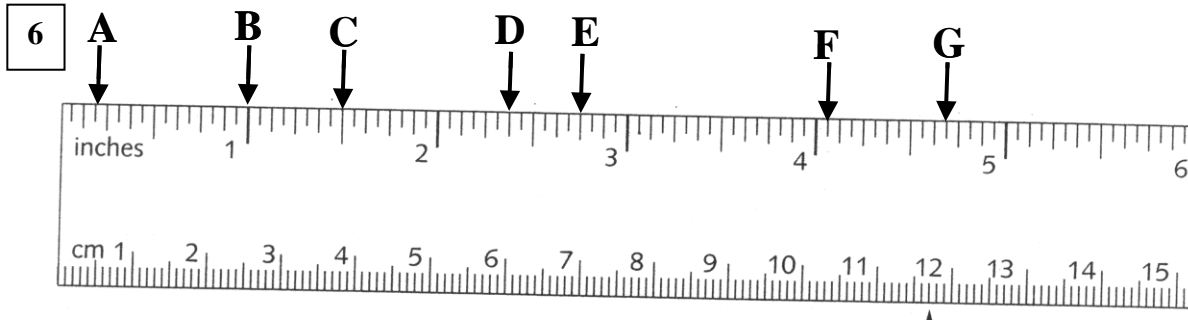
6 | **A**   **B**   **C**   **D**   **E**   **F**   **G**

A	B	C	D	E	F	G

8 8.   Convert the following:

a.   7 miles = _____ km   b.   48 lbs = _____ kg

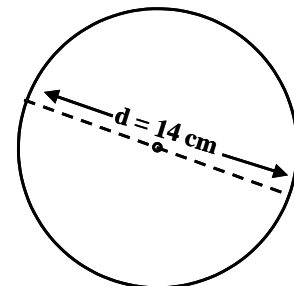c.   335 ml = _____ litres   d.   15 yards 2ft = _____ metres

8 9.   Calculate the **perimeter** (or circumference) *and* **area** of the following figures:
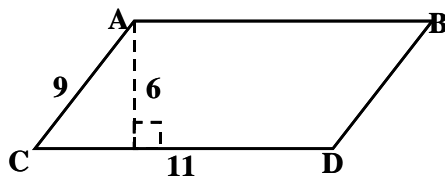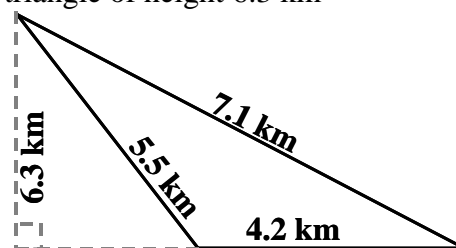
a.   b.

Don't forget to show work for everything,
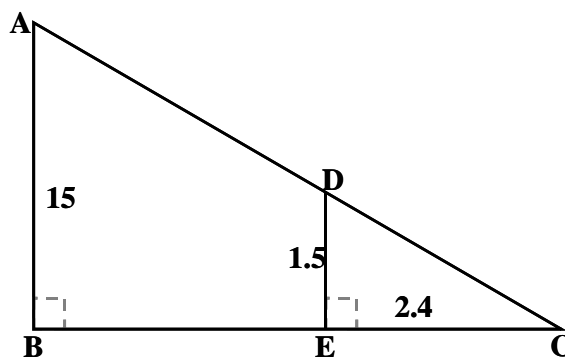you can at least get part marks!

c. This symmetrical trapezoid:

10.4 m

5.1 m   **5.7 m**

15.6 m
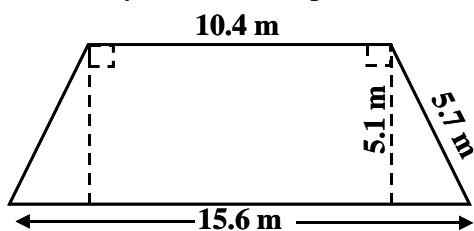
d. Obtuse triangle of height 6.3 km

6.3 km   **7.1 km**

5.5 km

4.2 km

6

10. Find the lengths:

a. BC = _____

b. BE = _____

c. AC = _____

A

15

D

1.5

2.4

B   E   C

2

11. What is the height of the flagpole if the **180** cm tall man casts a shadow of **2.5** m and the shadow of the flag pole is **10** m?

h

10 m   **1.8 m**   **2.5 m**

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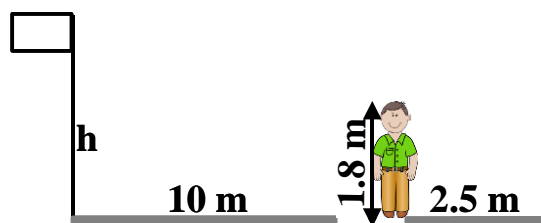
12. Integers:

a. $2 + 5 =$

b. $-3 + 8 =$

c. $7 + (-9) =$

d. $-4 - 6 =$

e. $12 - (\bar{8}) =$

f. $\bar{9} - (\bar{9}) =$

13. Evaluate:

a. $\dfrac{3^4 - 1}{(5-3)^2}$

b. $\dfrac{x + y^2}{(y-1)^2}$; **if** x = 0 and y = 4

14. Milk was sold in three sizes:

2 a. $6.48 for 4 litres (*on sale!*)

b. $2.99 for 2 litres

c. $1.89 for 1 litre

d. which of the three options is the least expensive unit price?

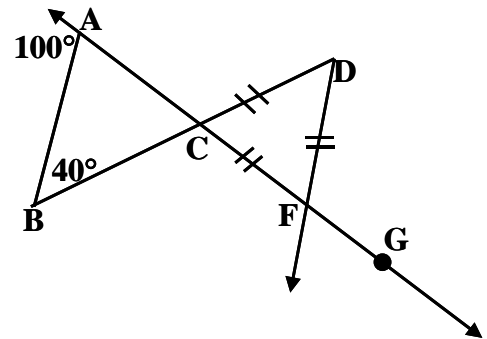e. Give a reason why you might not purchase the item that has the lowest unit cost.

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15. Coke was being sold in four different packages:

2

    a. $2.49 for 2 litres

    b. $1.59 for 1 litre

    c. $6.99 for 24 cans of 355 ml each, and

    d. $3.99 for 12 cans of 355 ml each.

    e.   which of the three options is the least expensive unit price?

    f.   Give a reason why you might not purchase the item that has the lowest unit cost.

16. Multiply or divide the integers as indicated:

6

  a. $2 * 8 =$ b. $3 * (-4) =$ c. $-4 * (-4) =$

  d. $15 \div (-3) =$ e. $^{-}14/2 =$ f. $\dfrac{-16}{-4} =$
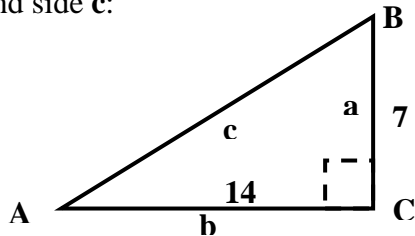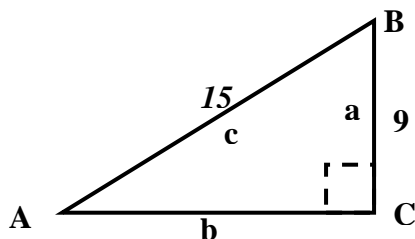
17. Find the measure of angle **DFG** (ie: **m∠DFG**):
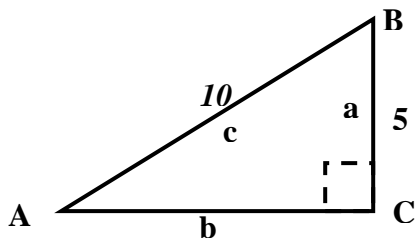
2

18. Find side **c**:

2

B
a 7
c
14
A
b
C

19. Find side **b**.

2

B
15
c a 9
A
b
C

20.

2

B
10
c a 5
A
b
C

Find:

a. sin (A)

b. cos (A)

c. tan (B)

d. the measure of angle B (m∠B):

21. Fractions: Evaluate (show work! No calculator!)

a. $\dfrac{1}{2} + \dfrac{3}{8} =$

b. $\dfrac{4}{5} - \dfrac{2}{3} =$

c. $1\dfrac{3}{4} + 2\dfrac{3}{8} =$

d. $\dfrac{1}{2} \bullet \dfrac{3}{8} =$

22. Solve:

a. $\dfrac{4}{7} = \dfrac{n}{28}$

b. $\dfrac{2}{5} = \dfrac{8}{x}$

c. $4 = \dfrac{n}{8}$

---

23. Measure the length of these lines in cm (to nearest tenth), mm, and inches (to nearest 1/8th)

a.

_____cm
_____mm
_____in

b.

_____cm
_____mm
_____in

24. CONVERT METRIC (use the conversion tables I gave you, though hopefully you do not really need them!)

a. 5.3 kg = _____ g

b. 6.37 km = _____ m,

c. 3,700 m = _____ km

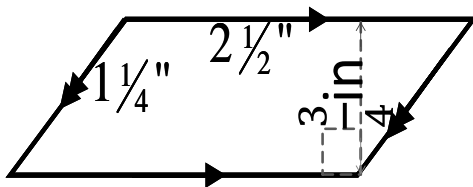**25. CONVERT** THE IMPERIAL MEASURES (use the conversion tables I gave you)
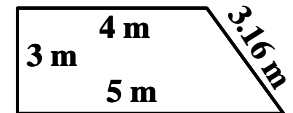
a. 4 ft = _____ inches

b. 5 miles = _____ yds

c. 40 oz = _____ lbs& _____ oz

26. Calculate the perimeter, **P**, and the area , **A**, of the given figures.
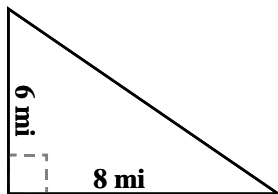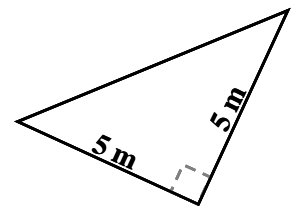
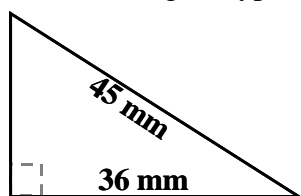a. Parallelogram

b. Trapezoid

c. Triangle (two legs given)

d. Triangle (two legs given)

e.   Triangle (hypotenuse given)   f.   Triangle (hypotenuse given).

45 mm

36 mm

c

31 cm

15 cm

a

b
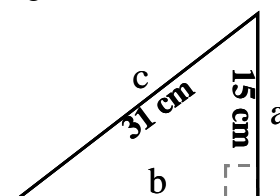
BONUS (no calculator!) Show work
1. Multiply Twelve Million, Three Hundred Forty Five Thousand, Six Hundred Seventy Nine by Twenty Seven

BONUS (Bonus marks *if* needed, Marks indicated)

2. What is the Perimeter *and* the Area of this bracket:

5 cm

14.1 cm

5 cm

5 cm
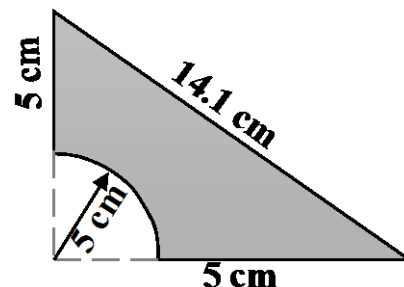
A bus has 81 passengers. At the first stop it lets of one. At the second stop it lets off three passengers; the third stop five passengers get off; and the same pattern of two more getting off than the previous stop at each further stop! At what number stop are there no passengers remaining on the bus?

ANSWERS

MULTIPLE CHOICE

1) $85.46	2) $513	3) $115.94	4) 9.5, 4.5	5) $767.25
6) 27.8%	7) $12 ea	8) 30"	9) $7.93	10) 6 ways
11) a	12) c	13) d	14) a	15) b
16) 55.76 ft	17) 1200 kg	18) $3\frac{5}{8}$	19) 9.9 yd	20) 50 cm
21) 4' 9"	22) $31.19	23) 15	24) $3'10\frac{1}{2}"$	25) 81 ft^2
26) 7.62 m^2	27) 10 cm^2	28) 78.5 m^2	29) 26.6°	30) 7
31) 24				

OPEN RESPONSE

1) Gross: $838.75
Taxable: $768.75
Net: $531.69

2)
a. 24
b. 35

3) a. $8\frac{3}{8}$ b. $2\frac{1}{10}$ c. $1\frac{4}{35}$
d. $6\frac{3}{4}$ e. 17:30   f. 09:35
g. 11 ft 4 in   h. 2 ft 3½ in
i. $9\frac{27}{32}$ j. $4\frac{3}{8}$

4.

metres (m)	feet (ft) and inches
1	3.2808 just use 3.28
3	_9_ ft __10_ in
4.5	_14 ft __9_ in
1.45	4ft 9 inches
137.2 m	450 ft
21.49	70ft 6 in
400 m	_1312_ ft
40 m	_131.2___ft
133.54	438 ft
10.37	34 ft
1.92	5 ft 11 in
1.45 m	_4_ft _9_ in

5.

pounds (lb) and oz	kilograms (kg)
2.205 just use 2.2	1
3.3 lb *no such thing really*	*1.5*
6.6 lb *no such thing really*	*3.0*
9.68 or *9 lb 11 oz*	4.4 kg
13 lb	5.9 kg
17 lb 8oz or ~~17.49lb~~	7.95 kg
6 lb 11 oz	*3.04 kg*
9 lb 3 oz	*4.18 kg*
157 lbs 2 oz	71.42 kg
79 lb 6 oz	36.09 kg
34 lbs 9 oz	*15.71 kg*

6.

	A	B	C	D	E	F
cm	*1.4*	*3.6*	*5.3*	*7.0*	*9.5*	*12 or 12.1*
mm	*14*	*36*	*53*	*70*	*95*	*120 or 121*

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7.

	A	B	C	D	E	F	G
	$^3/_{16}$	1	$1\frac{1}{2}$	$2\frac{3}{8}$	$2\frac{3}{4}$	$4\frac{1}{16}$	$4\frac{11}{16}$

8a) 11.26 km   8b) 21.77 kg   8c) 0.335 L   8d) 14.33 m

9a) P=40 units A = 66 unit^2 9b) P = 44 cm A = 153.94 cm^2
9c) P = 37.4 m A = 66.3 m^2 9d) P = 16.8 km A = 13.23 km^2

10a) 24   10b) 21.6   10c) 28.84
11) 7.2 m
12a) 7   12b) 5   12c) -2   12d) -10
12e) 20   12f) 0

13a) 20   13b) $1\frac{7}{9}$

14. $2.99 for 2 litres is the cheapest per unit.   Reason may not buy the chepest? Wrong brand, too big (just end up throwing some out?); may only have $2 on you? (can't afford to save money!); to heavy to carry on the bus; not fair trade; …

15.   the 24 tins is the best value for money, cheapest unit cost, only $0.82 per litre. Reasons to not buy same as above

12a) 16   12b) -12   12c) 16
12d) -5   12e) -7   12f) 4

17) 120°

18) c = 15.65 units   19) b = 12 units

20a) 0.500   20b) 0.866   20c) 0.577   20d) 60°

21a) $\frac{7}{8}$ 21b) $\frac{2}{15}$ 21c) $4\frac{1}{8}$ 21d) $\frac{3}{16}$

22a) n=16   22b) x = 20   22c) n = 32

23a)   23b)
10.7 cm   8.9 cm
107 mm   89 cm
$4\frac{1}{4}$ inches $3\frac{1}{2}$

24a)   5,300 g   24b)   6,370 m   24c)   3.7 km

25a)   48 in   25b)   8800 yd   25c)   2 lb 8 oz

26a) P = $7\frac{1}{2}$ in   26b) P = 15.16 m
A = $1\frac{7}{8}$ in^2 A= 13.5 m^2

26c) P = 24 mi   26d) P = 17.07 m
A = 24 square miles   A = 12.5 m^2
26e) P=108 mm   26f) P = 73.13 cm
A = 486 mm^2 A = 203.48 cm^2
 or 4.86 cm^2

BONUSES
1.   333,333,333
2.   P = 31.95 cm   A= 30.37 cm^2
3.   the bus is empties on the 9th stop. Just make a table!