PLAR

PRIOR LEARNING ASSESSMENT AND RECOGNITION

FOR MATURE STUDENTS

Individual Subject-Based Equivalency Assessment

Mathematics – Grades 9 & 10
Workplace Pathway Focus

SUPPORT GUIDE

Student's Name: _____

TASK 1

CALCULATING EXCHANGE RATES

1. The exchange rate (R) for converting Canadian Currency (CAD) into American Currency (USD) January 1, 2024 was 0.75; meaning $1.00 in Canadian Currency was worth $0.75 in American Currency.

   USD = CAD x R

   Calculate how much American money you would receive, if you asked to exchange $250 Canadian dollars, using the formula provided above for converting between the two currencies.

   To calculate USD (American money), use the formula: USD = CAD x R
   with CAD = $250 and R = 0.75

   USD = $250 x 0.75
   = $187.50 You would receive $187.50 USD in exchange for $250 CAD.

CALCULATING PRICES WITH TAX

2. Andrea wants to buy a sweater costing $80. Sales tax on this purchase is 13%.

   a) How much tax will Andrea be charged?

   To calculate tax, convert the percent to a decimal (by dividing by 100), then multiply by the price.

   Sales tax = 13 ÷ 100 x $80
   = $10.40 The amount of sales tax is $10.40.

   b) What will the total cost of the sweater be?

   To find the total cost, add the tax to the price of the sweater.

   Cost = $80 + $10.40

   = $90.40 The total cost of the sweater will be $90.40.

Student's Name: _____

TASK 1

CALCULATING SALES PRICES

3. Kendra has found a purse that costs $60. Because it is on sale, she is considering purchasing it.

   a) If the purse goes on sale for 30% off, what will the discount be?

   To calculate the discount, convert the percent to a decimal (by dividing by 100), then multiply by the price.

   Discount = 30 ÷ 100 x $60

   = $18 The discount will be $18.

   b) What will the sale price be?

   To calculate the sale price, subtract the discount from the original price.

   Sale price = $60 - $18

   = $42 The sale price will be $42.

   c) If Kendra must pay 13% tax on the sale price, how much tax will she pay?

   To calculate tax, convert the percent to a decimal (by dividing by 100), then multiply by the price.

   Sales tax = 13 ÷ 100 x $42

   = $5.46 She will pay $5.46 in tax.

   d) What will the total cost of the purse be, including the tax?

   To calculate the total cost, add the tax to the price of the purse.

   Total cost = $5.46 + $42

   = $47.46 The total cost of the purse will be $47.46.

Student's Name: _____

TASK 1

CALCULATING PRICES AND CHANGE

4. A box of doughnuts costs $7.99. No tax is added to food purchases. Mark bought 4 boxes of doughnuts and paid with a $50 bill.

   a) How much was Mark charged for 4 boxes of doughnuts?

   To calculate the total cost, multiply the number of units by the cost per unit.

   Total cost = 4 x $7.99

   = $31.96 Mark was charged $31.96 for 4 boxes of doughnuts.

   b) How much change did Mark receive from his $50 bill?

   To calculate the change received, subtract the price charged from the amount paid.

   Change received = $50.00 - $31.96

   = $18.04 Mark received $18.04 in change.

Student's Name: _____

TASK 1

CALCULATING UNIT PRICES AND PRICE COMPARISONS

Calculating unit prices (price per unit) is a useful way to make comparisons to find the best buy when shopping.

5. Frank needs to purchase laundry detergent. He compares these two prices:

- Walsave is selling a 3.9 litre (L) jug of laundry detergent for $24.79.
- Grocery Giant is selling a 2.04 litre (L) jug of the same detergent for $18.99.

a) If Frank purchases his detergent from Walsave, what is the cost of 1 L of detergent? (Cost per litre)

To calculate the unit price (cost per litre), divide the cost ($) by the volume (L).

Unit cost = $24.79 ÷ 3.9 L

= $6.36 1L of detergent at Walsave costs $6.36.

b) If Frank purchases his detergent from Grocery Giant, what is the cost of 1 L of detergent? (Cost per litre)

To calculate the unit price (cost per litre), divide the cost ($) by the volume (L).

Unit cost = $18.99 ÷ 2.04 L

= $9.31 1L of detergent at Grocery Giant costs $9.31.

c) Where do you recommend Frank purchase his laundry detergent? Why?

Comparing the 'unit cost' (price per litre), you can easily see which price will be the lowest.

In this case, Frank should purchase his laundry detergent from Walsave since the cost per litre is lower.

Student's Name: _____

TASK 2

CALCULATING EARNINGS

Stephane recently graduated from St. Lawrence College, where he trained in Hairstyling. At first, he will work as a hairstylist in an established hair salon. He dreams of opening his own salon one day and is deciding which location would be best.

6. Use the table to answer the questions.

Average Hourly Wages for Hairstylists in Canada			
Location	**Low Wage ($ per hour)**	**Average Wage ($ per hour)**	**High Wage ($ per hour)**
Toronto, Ontario	17.20	17.20	24.00
Ottawa, Ontario	17.20	17.20	29.23

From https://www.livingin-canada.com/salaries-for-hairstylists-barbers-canada.html

a) How much would Stephane earn in one week if he receives the 'High Wage' in **Toronto**? (Assume that he will work 40 hours per week.)

To calculate the amount earned in one week, multiply the hours by the wage ($/h)

Amount per week = 40 hours x $24.00

= $960.00 He would earn $960 in one week in Toronto.

b) How much would Stephane earn in one week if he receives the 'High Wage' in **Ottawa**? (Assume that he will work 40 hours per week.)

To calculate the amount earned in one week, multiply the hours by the wage ($/h)

Amount per week = 40 hours x $29.23

= $1169.20 He would earn $1169.20 in one week in Ottawa.

c) How much would Stephane make in one year in **Toronto**? (Assume that he will be paid for 52 weeks in one year.)

To calculate the amount earned in one year, multiply 52 weeks by the amount per week (from part b)

Amount per year = 52 weeks x $960.00

= $49 920.00 He would earn $49 920.00 in one year in Toronto.

Student's Name: _____

TASK 2

d) How much would Stephane make in one year in **Ottawa**? (Assume that he will be paid for 52 weeks in one year.)

To calculate the amount earned in one year, multiply 52 weeks by the amount per week (from part b)

Amount per year = 52 weeks x $1169.20

= $60 798.40 He would earn $60 798.40 in one year in Ottawa.

e) How much more would he earn per year, if he chose to work in Ottawa instead of Toronto?

Calculate the difference by subtracting the amount earned in Toronto (from part c) from the amount earned in Ottawa (from part d).

Difference = Ottawa amount per year – Toronto amount per year

= $60 798.40 – 49 920.00

= $10 878.40 He would earn $10 878.40 more per year in Ottawa.

Student's Name: _____

TASK 2

SUPPLY ORDERING AND UNIT COSTS

7. One of Stephane's duties is to order supplies. Next week, he will need:
   - 6 L Shampoo
   - 3 L Conditioner
   - 500 mL Gel
   - 200 Gloves
   - 10 Combs
   - 2 pairs of Scissors
   - 4 capes

Complete the order form and determine the total cost of the order. Include enough units of each ingredient so that Stephane does not run out of supplies. (NOTE: Only whole units can be ordered. There will be 'leftovers'.)

For Shampoo:
First, find the 'number of units' by comparing the amount needed to the item amount:
Shampoo needed = 6 L
Shampoo item amount = 3.78 L
*To make 6 L of shampoo, you will need **2** x 3.78L (Don't worry that there is extra!)*

Then, calculate the cost by multiplying the 'cost per unit' by the 'number of units'
*For Shampoo = $14.50 x **2** = $29.00*

Item	Cost per Unit	Number of Units	Cost ($)
Shampoo 3.78L	$14.50	*2*	*29.00*
Conditioner 3.78L	$16.50	*1*	*16.50*
Gel 1000mL	$18.50	*2*	*37.00*
Gloves 100/box	$16.99	*2*	*33.98*
Combs 3/pack	$12.99	*4*	*51.96*
Scissors 1 pair	$99.99	*2*	*199.98*
Capes 5/pack	$100.00	*1*	*100.00*
		Total Cost of the Order	*468.42*

To calculate the 'total cost of the order', add all the costs.

Student's Name: _____

TASK 2

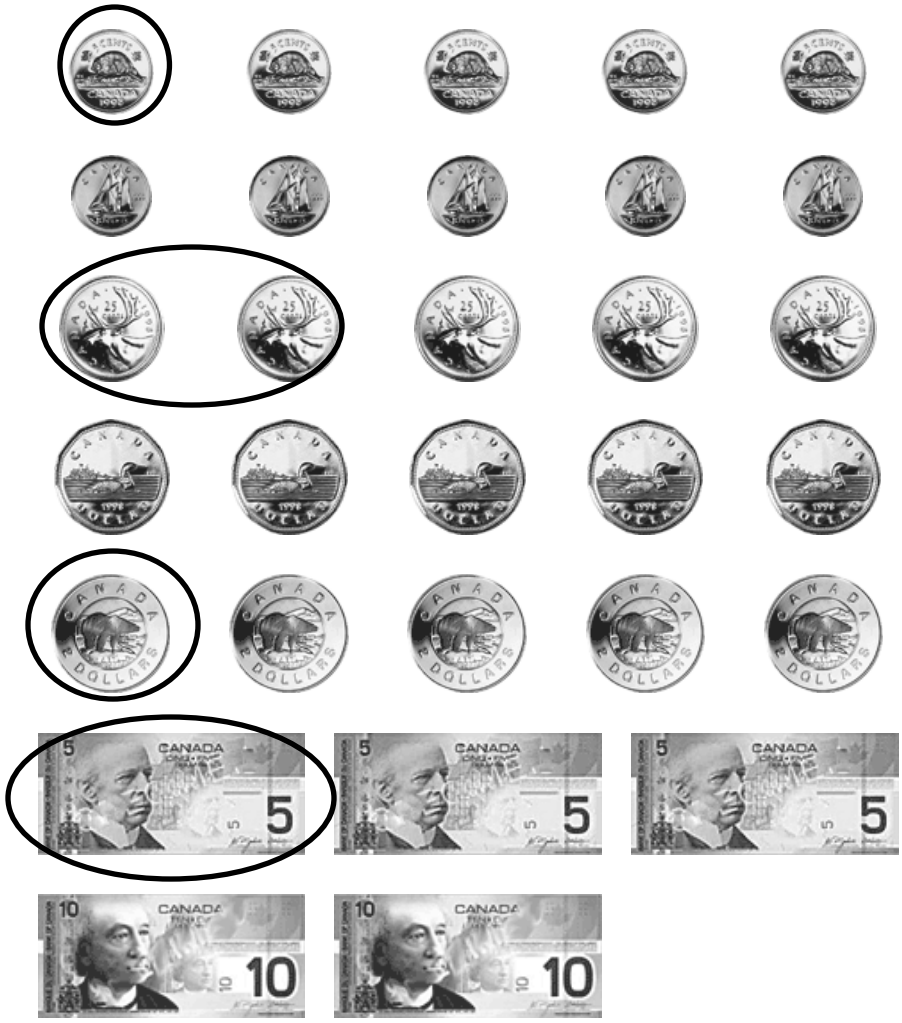
WORKING WITH MONEY

8. A customer pays for their haircut with a $50 bill. The price is $42.45.

   a) How much change must Stephane give the customer?

   To calculate the amount of change subtract the price from the amount paid.
   Change = $50.00 - $42.45
   = $7.55 Stephane owes the customer $7.55 in change.

   b) Circle a combination of bills and coins that would add up to the correct change.



One option is circled here:
$0.05
+$0.50
+$2.00
+$5.00

= $7.55

NOTE: Other correct combinations are possible.

Source http://worksheets.theteacherscorner.net/make-your-own/money-worksheets/money-worksheet.php

Student's Name: _____

TASK 3

FORMULA CONSUMPTION AND CALCULATIONS

Raising children comes with a variety of expenses. This task explores some of the math related to feeding and caring for children.

9. After the first 6 months of exclusive breast/formula feeding many parents introduce infant cereal. One brand of oat cereal costs $5.47 for a package with a mass of 227 grams.

   The preparation instructions indicate to measure 5 tbsp (28 g) with 1/3 cup (90mL) of water to create a smooth consistency. This will create about 1/3 cup of prepared infant cereal.

   a) If the baby consumes 1 cup of prepared infant cereal per day, how many tbsp of cereal will be needed to prepare that much food?
   To determine the amount of cereal needed:
   - ***1/3 cup prepared cereal needs 5 tbsp of cereal***

   For 1 cup, ***3 sets*** *will be needed (1/3 cup + 1/3 cup + 1/3 cup = 1 cup)*
   3 sets *of 5tbsp =* ***3 x*** *5tbsp = 15 tbsp.*
   15 tbsp of cereal will be needed to prepare food for the day.

   b) How many grams of cereal would be in the number of tbsp that you calculated in part a?
   To determine the number of grams, remember there are 28g in 5 tbsp,
   - *From a)* ***3 sets*** *of 5 tbsp are needed to make the 15 tbsp for the day,*

   For total grams, multiply ***3 x*** *28g = 84g*
   84g of cereal will be needed for the day.

   c) After how many days will this package of infant cereal be used up?
   To calculate the number of days divide the total grams in the package by the grams needed each day: 227 g ÷ 84 g/day
   = 2.7 days The infant cereal will be used up after about 2 ½ days.

   d) What is the cost per day to use this cereal?
   To calculate this cost, divide the price by the # of days:
   Cost = $5.47 ÷ 2.7 days
   = $2.03 This cereal costs $2.03 per day.

Student's Name: _____

TASK 3

MEDICATION CALCULATIONS

10. Sometimes children need to take medication for fever or pain. One option to treat children is Children's Advil*, a medication that can be purchased at a local pharmacy.

Refer to the chart to answer the questions.

Advil* (ibuprofen oral suspension)

Dosage : Administer single dose orally, every 6-8 hours, do not exceed 4 doses/day

Dosage		INFANT ADVIL Drops 50mg/1.25mL (0 – under 2 years)	CHILDREN'S ADVIL Syrup 100mg/5mL (2 - 12 years)
lbs	kgs		
Less than 12		Consult a physician	
12 - 17	5.5 – 7.9	1.25 mL	
18 - 23	8.0 – 10.9	1.875 mL	
24 – 35	11.0 – 15.9		5
36 - 47	16.0 – 21.9		7.5
48 - 59	22 – 26.9		10
60 - 71	27 – 31.9		12.5
72 - 95	32 – 43.9		15

* https://www.drugs.com/dosage-charts/advil-infants-children.html

a) Noonya has a mass of 30 kgs and is 7-years-old. What product(s) would be appropriate for purchase?
Children's Advil

b) What would be the correct dosage for this product?
From the table, 12.5 mL every 6-8 hours would be the correct dosage.

(Find the row indicating the correct weight → 30 kg, and the column for the correct age → 7 years. The box where they meet provides the answer.)

c) What would be the maximum volume of medication that could be given during a 24-hour period of time?

To calculate the maximum volume, multiply the dose by the max number of doses. In 24 hours, the max number of doses would be 4. (24 ÷ 6 – 4)
Max volume of medication = 12.5 mL x 4 doses
= 50 mL

Student's Name: _____

TASK 3

CHILDCARE EXPENSES

11. Another expense for parents to consider is childcare. Use the summary table at the bottom of the page from the London, Ontario area to learn more about daycare expenses.

    a) What is the full-time monthly fee for an infant at Little Acorns?

    $1107.00 is the monthly fee.

    b) What would be the cost of childcare at that facility for one year?

    To determine an annual cost, multiple the monthly fee by 12 (12 months/year)
    Cost = $1107.00/month x 12 months/year
    = $13 284.00 / year
    The cost for one year at Little Acorns would be $13 284.00

    c) Many parents qualify for subsidies to help them cover childcare expenses. If you receive a subsidy to cover 40% of this expense, how much money will you have to spend for childcare each year?

    To determine the amount, calculate the subsidy amount (by dividing 40 by 100 and multiplying by the childcare cost), then subtracting this subsidy from the total expense:
    Subsidy money = 40 ÷ 100 x $13 284.00
    = $5 313.60
    You spend = $13 284.00 - $5 313.60
    = $7 970.40 You will spend $7 970.40 with the subsidy.

Summary Fee Schedule				
Infants - Full Time (5 days/week)		Toddlers - Full Time (5 days/week)	Preschool, JK and SK - Full Time (5 days/week)	
Centre	Full Day	Full Day	Full Day	Half Day
	Monthly	Monthly	Monthly	Monthly
ABC Adelaide	$1,087.00	$1,040.00	$943.00	$847.00
Elmwood Avenue	$1,087.00	$1,040.00	$943.00	$847.00
Little Acorns	$1,107.00	$1,062.00	$964.00	$867.00
London Day	$1,087.00	$1,040.00	$943.00	$847.00
Piccadilly Place	$1,107.00	$1,062.00	$964.00	$867.00

Source www.londonbridge.com

Student's Name: _____

TASK 4

CALCULATING RENOVATION EXPENSES

Home improvements and repairs are another time math is used in our daily lives.

12. Material costs are found by determining the amount of materials needed and multiplying by the cost, and adding sales tax to the price.

    Raquelle is installing new carpet but first must purchase 9 sheets of plywood to cover the floor before the carpet is laid. Plywood costs $26.25 per sheet.

    What will be the cost of the plywood, including 13% sales tax?

    To calculate the cost, multiply the number of sheets needed by the cost per sheet:
    Cost = 9 sheets x $26.25/sheet
    = $236.25

    Sales tax = 13 ÷ 100 x $236.25
    = $30.71

    Total cost = $236.25 + $30.71
    = $266.96 The cost of the plywood is $266.96

Student's Name: _____

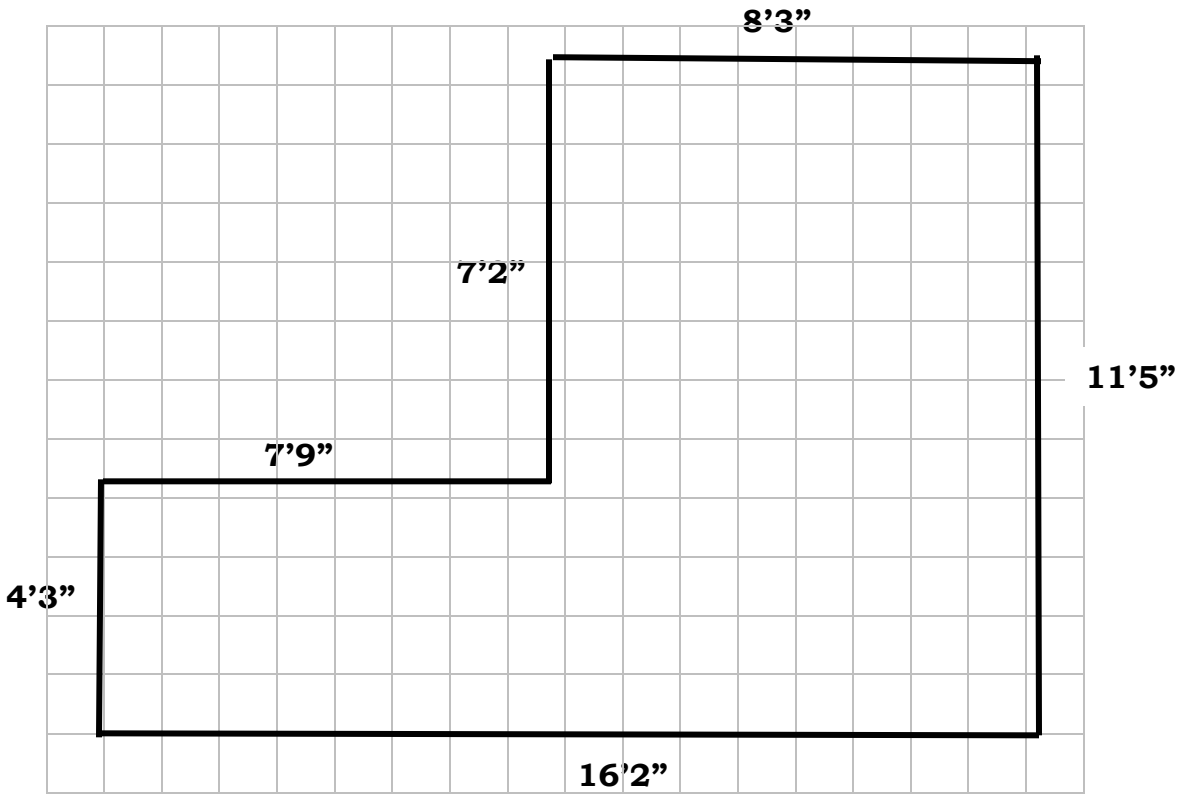
TASK 4

CALCULATING AREA AND COST

13. a) Raquelle must determine the approximate area of the room to be carpeted. Estimate the number of square feet of carpet that must be purchased.

NOTE: It is reasonable to round dimensions to the nearest foot for this calculation. One square on the grid has the dimensions of 1' by 1' (one foot by one foot).

Area for a rectangle = length x width



Note about units:

4'3" means 4 feet (ft) 3 inches (in)

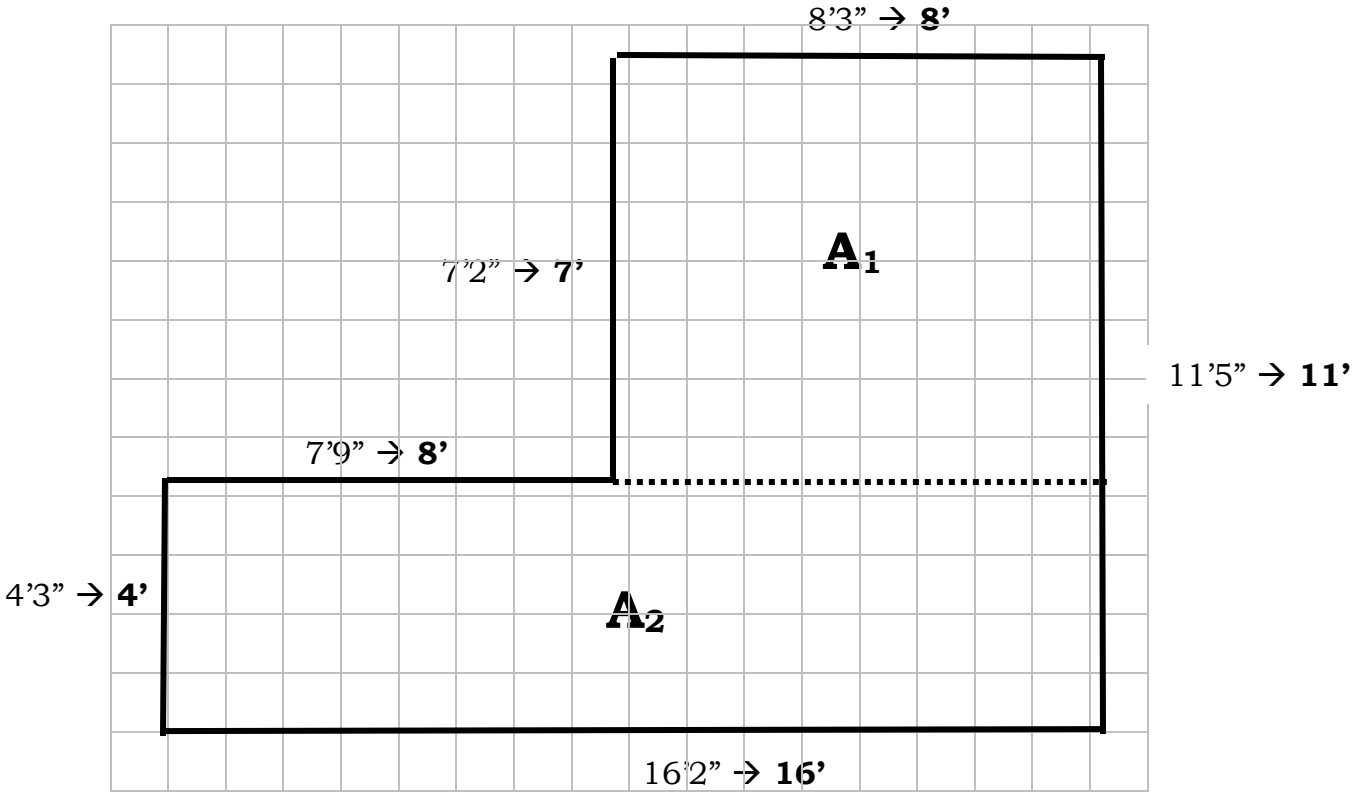
For area:

Feet (ft) x feet (ft) = square feet (ft^2)

Student's Name: _____

TASK 4

To begin, round each dimension to the nearest foot:



Then divide the space into rectangles to form 2 Areas (A_1 and A_2).

Area for a rectangle = length x width

Calculate the area in each rectangle:

A_1 = 8ft x 7ft
= 56 ft^2

A_2 = 4ft x 16ft
= 64 ft^2

Then add the areas together to find the total area:

$A_1 + A_2$ = 56 ft^2 + 64 ft^2
= 120 ft^2

The approximate area of the room is 120 ft^2.

Student's Name: _____

TASK 4

b) It is common to order extra flooring. If Raquelle wishes to order 10% more square feet of carpet than the estimated area of the floor, how many square feet of carpet should she order?

To calculate the EXTRA carpet to order, convert the percent to a decimal (by dividing by 100), then multiply by the estimated area (square feet you found in part a).

Extra carpet to order = 10 ÷100 x 120 ft^2
= 12 ft^2

Find the total amount of carpet by adding the extra to the estimated area:
Total carpet to order = 12 ft^2 + 120 ft^2
= 132 ft^2 The amount of carpet to order is 132 ft^2.

c) The carpet comes in rolls that contain 60 square feet each. How many rolls are needed?

To calculate the number of carpet rolls, divide the total carpet needed by 60:

# of rolls = 132 ft^2 ÷ 60 ft^2
= 2.2 rolls of carpet If carpet needs to be purchased in full rolls, 3 rolls will be needed.

d) Labour costs for installation must also be paid. If the carpet can be installed at a rate of 100 square feet per hour and the cost is $20.00 per hour, what will be the cost of the labor?
(HINT: Use the area – square footage – you calculated in part a) to complete this question.)

To determine time required, divide total square feet by 100 square feet per hour:
Time = 120 ft^2 ÷100 ft^2/hour
= 1.2 hours

To find the cost of labour, multiple the hours by the fee ($20/hour):
Labour cost = 1.2 h x $20.00/h
= $24.00 The cost of the labour will be $24.00

Student's Name: _____

TASK 4

CALCULATING LOAN COSTS

14. In some situations, it is necessary to borrow money to afford to complete renovation projects. It is important to understand the cost of such a loan.

A store will often offer a short-term (3 months to 1 year) loan with no interest. After the short period of time, any unpaid balance will be charged a high interest rate (usually greater than 15%).

If $3000 is borrowed, and not repaid within the short-term loan period, an interest rate of 25% will be applied.

a) If 48 monthly payments of $205.00 are needed to repay this loan, what is the total amount of these payments?

To determine the amount of the payments, multiply the # of payments x the amount paid:

Amount of payments = 48 payments x $205.00/payment

= $9840 The total amount paid is $9840.

b) What would be the cost of borrowing (the extra money paid in interest) for this loan?

To determine the cost of borrowing, subtract the initial loan amount from the total amount of payments (from part a):

Cost of borrowing = $9840 - $3000

= $6840 The cost of borrowing is $6840.