

Show all your details work on separate sheet(s) (8½ x 11):**Instructions:**

- Provide solutions where needed with a final statement
- Pay attention to degree of accuracy required
- Check your work when finished

1. Solve the linear system by elimination.

$$3x + y = 5$$

$$x - 2y = 11$$

2. Bert's Plumbing charges \$50 for a service call, plus \$40/h for labour. Ernie's Plumbing charges \$30 for a service call, plus \$45/h for labour.

- When do both companies charge the same?
- What company would you use for a repair lasting 5 hours? Justify your answer.

3. $\triangle QRS$ has vertices Q (2, 6), R (–3, 1), and S (6, 2). Determine the perimeter of the triangle. Round your answer to the nearest tenth of a unit. Place the triangle on the grid provided.

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- Determine the equation of the circle that is centred at (0, 0) and passes through (–4, –3).
 - Identify the coordinates of the x and y-intercepts and three other points on the circle.

5. The Class Five Snowboard company makes custom snowboards. The company's profit can be modeled with the relation $y = -6x^2 + 42x - 60$, where x is the number of snowboards sold (in thousands) and y is the profit (in hundreds of thousands of dollars). What is the least number of snowboard that the company can sell to break even?

6. Expand and simplify

a) $(x+5)(x+4)$

b) $(x-2)(x-5)$

c) $(2x-3)(2x+3)$

d) $2(2x-6)^2$

