

MIDTERM REVIEW

Chapter 1 – Investigating Equation in 3 – space

1. Solve the following system of equations using the substitution method:

(A) $x + 2y = 9$
 $2x - y = 8$

(B) $5x - 3y = -13$
 $x + 4y = 2$

(C) $5a + 7b = 1$
 $4a - 2b = 16$

2. Solve the following system of equation using the elimination (multiplication – addition) method:

(A) $2x + 3y = 6$
 $x + 2y = 5$

(B) $2x - 3y = 22$
 $4x + y = 2$

(C) $3a - 2b = 7$
 $3a + 5b = 14$

3. Solve the following system of equations using the method of your choice:

(A) $x - y = 1$
 $x + y + z = 6$
 $x - y - z = -2$

(B) $2x - y + z = -12$
 $3x + y + 2z = -9$
 $x + 4y + 3z = 7$

4. For each matrix below (i) determine the determinant and, (ii) write its inverse:

(A) $\begin{bmatrix} 3 & 5 \\ 3 & 4 \end{bmatrix}$

(B) $\begin{bmatrix} 5 & -2 \\ -2 & -1 \end{bmatrix}$

5. Nicole's phone company charges a base fee of \$10 per month while Tina's phone company does not charge any monthly fee. Determine the per-minute charge for calls to Canada and to the US for each phone plan.

	Time within Canada (min)	Time to the US (min)	Cost (\$)
Nicole	20	20	25.00
Tina	30	50	32.00

6. Newtel charges 20¢/min to call within Canada and 35¢ minute to calls to Europe plus an additional monthly fee of \$8.

(A) Write an equation to represent this phone plan.

(B) Sketch the graph of the equation on the isometric dot paper below.

(C) Identify the trace lines.

7. A ball is thrown up in the air from a height of 2m. The ball travels just above the top of a tree 10 m away and 4.5 m high, and finally falls to the ground at a distance of 30m from where it was thrown.

(A) Describe the path of the ball as a quadratic function of distance from the throw.

(i.e. $y = ax^2 + bx + c$).

(B) How far away is the ball if its height is 3.2 m?