

PreCalculus 11 - Chapter 7
Practice Test

1. **Solve the following systems of equations graphically.**

a) $y = 4x + 3$

$y = 2x^2 + 8x + 3$

b) $y = x^2 + 2$

$y = -x^2 + 2x + 6$

2. **Solve the following systems of equations algebraically.**

a) $5x - y = 10$

$x^2 + x - 2y = 0$

b) $3x^2 - x - 2 = y$

$6x^2 + 4x - 4 = y$

c) $y = -2(x + 4)^2 - 5$

$y = -2x^2 - 16x - 37$

3. **Graph the systems of inequalities.**

a) $3x + 2y < -6$

$y > 2x + 1$

b) $x + y \leq 8$

$2x - y > 3$

$x \geq 0$

$y \geq 0$

c) $x^2 - 2x - 3 \leq y$

$y < x$

d) $y < -2x^2 + 8$

$y \geq (x - 1)^2 - 4$

4. **Solve the following quadratic inequalities.**

a) $-x^2 + x + 12 < 0$

b) $2x^2 - 7x \geq 12$

5. **Solve.**

a) The height of a right triangle is 2cm longer than the base. How long should the base be to ensure that the area of the triangle is at least 4cm^2 ? Solve by using a quadratic inequality.

b) Suppose that an engineer determines that she can use the formula $-t^2 + 14 \leq P$ to estimate when the price of carbon fibre will be P dollars per kilogram of less in t years from the present. When will the price be less than \$10/kg?