

**PDEV 100**  
**Exam 2**  
**Review Sheet**  
**Answer Key**

This review sheet is intended to remind you of the concepts that you are expected to understand for the exam. It is by no means a complete representation of what could be on the exam. You are responsible for everything discussed in the notes, on labs and in the suggested homework exercises. You should work these on a separate piece of paper.

1. Solve the following equations for  $x$ .

(a)  $x = 30$

(f)  $x = \frac{7}{2}$

(b)  $x = \frac{12}{23}$

(g)  $x = -3, -2$  or  $2$

(c)  $x = 5$  or  $-2$

(h) No Solutions

(d)  $x = 1/2$  or  $-1/2$

(e)  $x = -2, 1$  or  $6$

(i) All real numbers

2. Assume that  $xz^2 - y = zx$ .

(a)  $x = 1$ .

(c)  $z = 3$  or  $-2$

(b)  $y = \frac{3}{4}$

3. Solve the following formulas for the required variable.

(a)  $x = \frac{3y+2z}{y}$

(c)  $t = \frac{14}{r-p}$

(b)  $a = \frac{2cd+c}{b+d}$

4. Let  $t$  be the number of individual tickets that were purchased. Then there were  $270 - t$  tables purchased. They made  $150t$  dollars from tickets and  $2000(270 - t)$  dollars for tables. This gives the equation,

$$150t + 2000(270 - t) = 66400.$$

If you solve this equation you will get that 256 individual tickets were purchased and 14 tables were purchased.

5. Let  $a$  be the measure of one of the angles. Then the measure of the other angle is  $5a - 6$ . This gives us the equation,

$$a + 5a - 6 = 180.$$

Solving the equation gives that one angle measures 29 degrees and the other measures 151 degrees.

6. Let  $w$  be the width of the rectangle in feet. Then the length is  $3w$  feet. This gives the equation

$$w + w + 3w + 3w = 800.$$

Solving gives that the width of the rectangle is 100 feet and the length is 300 feet.

7. Let  $b$  be the measure of a base angle. The other angle measures  $\frac{2}{5}b + 60$ . This gives the equation

$$b + b + \frac{2}{5}b + 60 = 800.$$

Solving gives that the base angles each measure 50 degrees and the other angle measures 80 degrees.

8. Let  $c$  be the number of CD's that were given away. Then  $240 - c$  DVD's were given away. The cost of the CD's was  $2c$  and the cost of the DVD's was  $3(240 - c)$ . This gives the equation

$$2c + 3(240 - c) = 520.$$

Solving gives that they gave away 200 CD's and 40 DVD's.

9. Let  $s$  be the length of the shortest side in inches. Then the length of the longest side is  $3s$  inches and the length of the other side is  $s + 5$  inches. This gives the equation,

$$s + 3s + s + 5 = 45.$$

Solving gives that the lengths of the sides of the triangle are 8, 13, and 24 inches.

10. Express the following inequalities in interval notation.

(a)  $(-\infty, 3]$

(c)  $(-\infty, 0]$

(b)  $[-3, 10]$

(d)  $[-2/5, 3/2]$

11. Solve the following inequalities, graph your solutions and give interval notation.

(a)  $22 \leq x, [22, \infty)$

(c)  $-5 \geq x, (-\infty, -5]$

(b)  $3 \geq x \geq -\frac{11}{2}, [-\frac{11}{2}, 3]$

(d)  $-\frac{7}{3} \leq x \leq \frac{2}{3}$

12. Solve the following equations for  $x$ .

(a)  $x = \frac{5}{2}$  or  $\frac{-3}{2}$

(c)  $x = -\frac{1}{6}$  or  $-\frac{1}{2}$

(b)  $x = 8$  or  $-2$

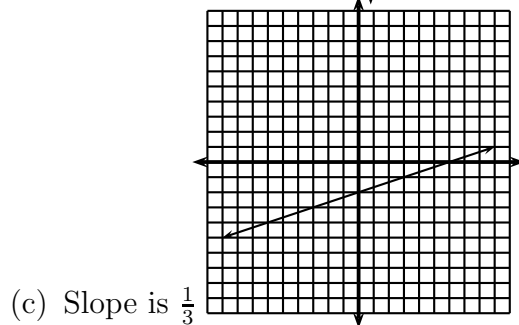
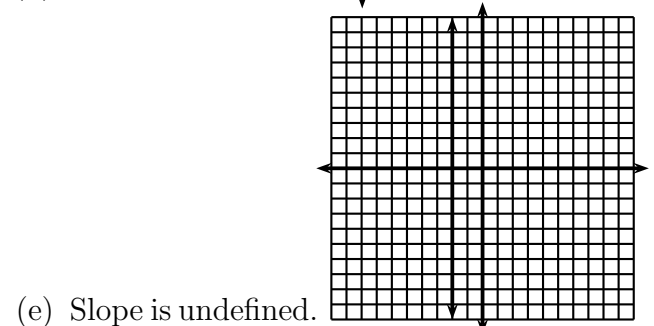
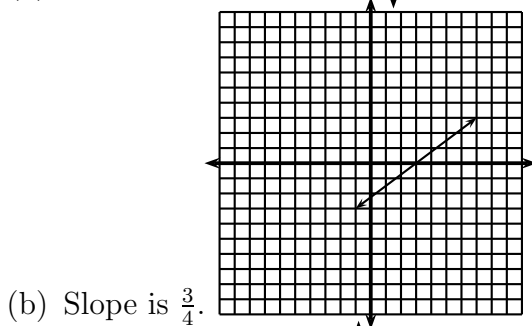
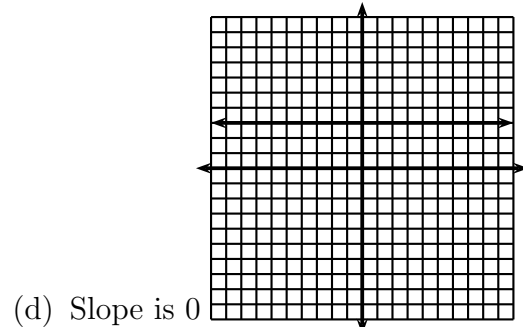
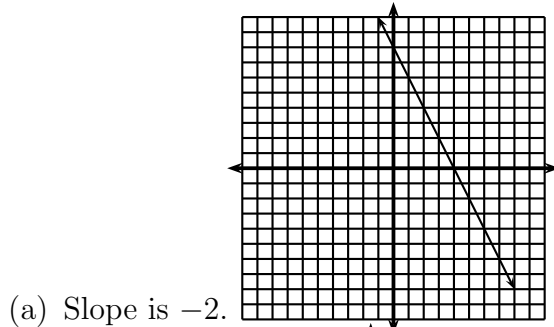
(d) No solution

13. Solve the following absolute value inequalities. Leave your answer in interval notation.

(a)  $13 > x > -7, (-7, 13)$

- (b)  $x \geq \frac{3}{2}$  or  $x \leq -\frac{5}{2}$ ,  $(-\infty, -\frac{5}{2}] \cup [\frac{3}{2}, \infty)$
- (c)  $x < \frac{5}{2}$  or  $x > \frac{11}{2}$ ,  $(-\infty, \frac{5}{2}) \cup (\frac{11}{2}, \infty)$
- (d)  $-\frac{7}{2} \leq x \leq -\frac{1}{2}$ ,  $(-\frac{7}{2}, -\frac{1}{2})$
- (e) No Solution

14. Find the slope of each line and graph it.



15. Find the slope of the line passing through the given points and the slope of a line perpendicular to the line passing through the given points. Then find an equation of the line passing through the given points.

- (a) Slope of the line through the points:  $-\frac{2}{3}$ . Perpendicular slope:  $\frac{3}{2}$ . Equation:  $y = -\frac{2}{3}x + \frac{20}{3}$ .
- (b) Slope of the line through the points:  $\frac{7}{5}$ . Perpendicular slope:  $-\frac{5}{7}$ . Equation:  $y = \frac{7}{5}x - \frac{19}{5}$ .
- (c) Slope of the line through the points: 0. Perpendicular slope: undefined. Equation:  $y = 6$ .

(d) Slope of the line through the points:  $-\frac{5}{4}$ . Perpendicular slope:  $\frac{4}{5}$ . Equation:  
 $y = -\frac{5}{4}x + \frac{15}{2}$ .

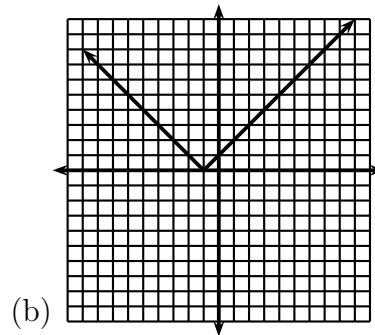
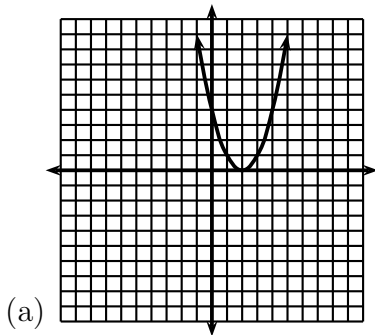
16.  $y = \frac{5}{4}x - 3$

17.  $x = 2$

18.  $y = \frac{5}{7}x - \frac{34}{7}$

19.  $y = -\frac{6}{5}x + 15$

20. Graph the following equations by plotting points.



21. Solve the following inequalities. Graph your solutions.

