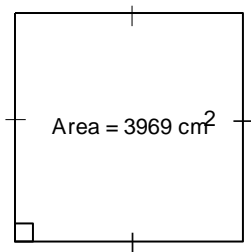


# Exam Review

- Determine the GCF of each set of numbers.  
a) 120, 160, 180                      b) 245, 280, 385  
c) 176, 320, 368                      d) 484, 496, 884
- Determine the LCM of each set of numbers.  
a) 70, 90, 140                      b) 120, 130, 309  
c) 200, 250, 500                      d) 180, 240, 340
- Is each number a perfect square, a perfect cube, or neither? Determine the square root of each perfect square and the cube root of each perfect cube.  
a) 256                      b) 324                      c) 729  
d) 1298                      e) 1936                      f) 9261
- Determine the side length of this square.



- A square has an area of 18 225 square feet. What is the perimeter of the square?
- A cube has a surface area of 11 616 cm<sup>2</sup>. What is the edge length of the cube?
- Expand and simplify the following:
  - $(x + 3)(x + 5)$
  - $(x - 5)(3x + 2)$
  - $(5t - 2)^2$
  - $2x(x + 2)$

8. **Fully factor** the following:

a.  $2a - 8ab$

d.  $9m^2 - 1$

g.  $x^2 + 12xy + 27y^2$

b.  $3x^2 - 48$

e.  $3x^2 + 10x + 7$

h.  $x^2 - 11x + 30$

c.  $x^2 - 16x + 28$

f.  $2x^2 + 3x + 1$

9. Write each radical in simplest form.

a)  $\sqrt{150}$       b)  $\sqrt[3]{135}$       c)  $\sqrt{112}$       d)  $\sqrt[4]{162}$

10. Write each mixed radical as an entire radical.

a)  $6\sqrt{5}$       b)  $3\sqrt{14}$       c)  $4\sqrt[3]{3}$       d)  $2\sqrt[4]{2}$

11. Express each power as a radical.

a)  $12^{\frac{1}{4}}$       b)  $(-50)^{\frac{5}{3}}$       c)  $1.2^{\frac{1}{2}}$       d)  $(\frac{3}{8})^{\frac{1}{3}}$

12. Express each radical as a power.

a)  $\sqrt{1.4}$       b)  $\sqrt[3]{13^2}$       c)  $(\sqrt[5]{2.5})^4$       d)  $(\sqrt[4]{\frac{2}{5}})$

13. Using the following formula, solve for q when  $M = 475$ .

$$q = 70M^{\frac{3}{4}}$$

14. Simplify the following:

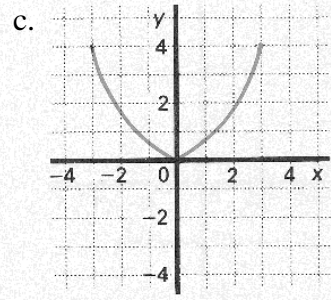
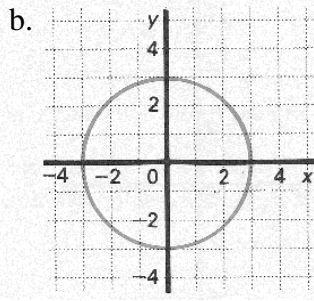
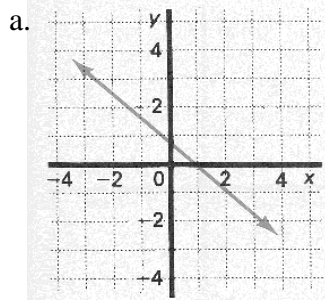
a)  $(3mn^2)^3$       b)  $(16a^2b^4)^{-\frac{1}{2}}$       c)  $\frac{xy^4}{y}$       d)  $(\frac{r^3s^{-1}}{r^{-2}s^{-2}})$

e)  $(a^3b)(a^{-1}b^4)$       f)  $(\frac{x^2y}{x^2})$       g)  $\frac{a^3}{a^5} \cdot a^{-3}$       h)  $(x^{\frac{1}{2}}y)(x^{\frac{3}{2}}y^{-2})$

15. Evaluate the following.

a)  $(\frac{3}{2})^{\frac{3}{2}} \cdot (\frac{3}{2})^{\frac{1}{2}}$       b)  $\frac{0.16^{\frac{3}{4}}}{0.16^{\frac{1}{4}}}$       c)  $[(\frac{12}{-5})^{\frac{1}{3}}]^6$       d)  $\sqrt[4]{\frac{256}{81}}$

16. Are the following examples of functions?



a.  $\{(-2,7), (-1,5), (0,3), (1,1), (2,1)\}$

e.  $\{(-7,20), (3,5), (0,5), (-2,0), (6,-4), (-6,-9), (4,4)\}$

b.  $\{(4,8), (-3,-2), (9,6), (2,-1), (-4,-5), (2,7), (-8,0)\}$

17. If  $h(x) = x^2$ ,  $f(x) = 2x + 5$  and  $g(x) = 1 + 3x$ , find

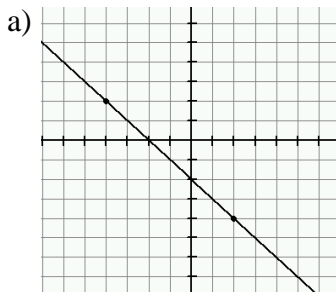
a.  $h(2)$

b.  $g(-3)$

c.  $f(0)$

d.  $h(0)$

18. Calculate the slope and y-intercept of each line



b) going between  
(-1, 4) and (3, -2)

c)  $y = \frac{-1}{4}x + 5$

d)  $x + y = 5$

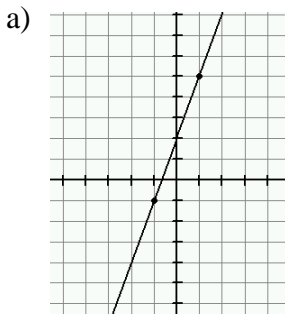
e)  $3x - 5y = 12$

f) a horizontal line through (-2, 3)

g)  $-6 - \frac{1}{2}y = -\frac{2}{3}x$

h)  $\frac{2}{5}x - \frac{1}{3}y = -1$

19. What is the equation of each line? Express answers in the form  $y = mx + b$



b)  $m = \frac{1}{2}$  and a  
y-intercept of -5.

c) with a slope of 2  
going through (3, -1).

d)  $m = -3$ , through (1, 6)

e) through (4, 2) and (0, -3)

f) through (1, -5) and (-7, 3)

20. Which point(s) are on the line given by  $2x - 4y + 8 = 0$ ?

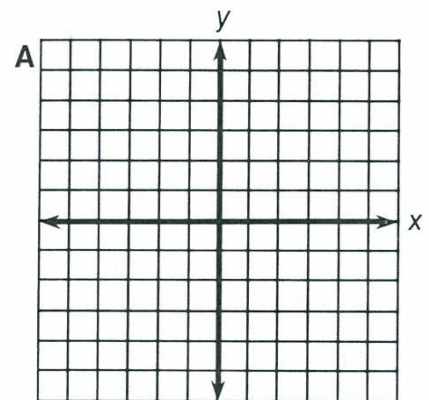
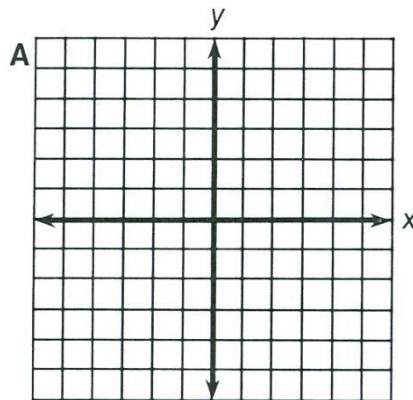
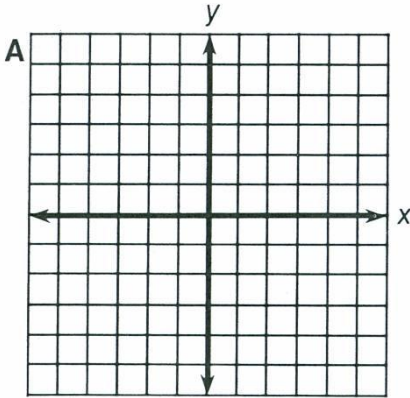
- (2, 2)      (4, 0)      (-4, -2)      (8, 4)      (-4, 0)      (-12, -4)      (0, -2)

21. Graph each of the following equations.

a)  $y = \frac{1}{3}x - 2$

b)  $2y - 3x = 4$

c) x-intercept of 4, y-intercept of -3

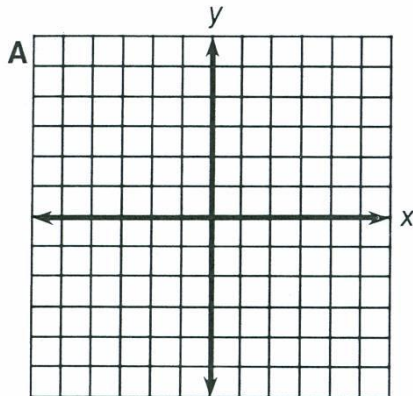


22. The Civic Center is planning a Fall Banquet. The Center charges a fixed cost of \$200 plus \$5 per guest.

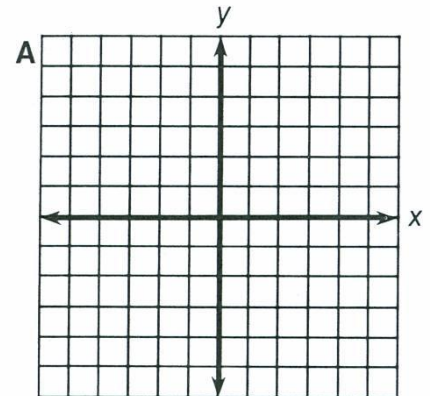
- Write an equation to represent this relationship.
- What does the slope represent? What does the y-intercept represent?
- How much will the Fall Banquet cost if 79 guests attend?
- Suppose your teacher wanted to pay for everyone's meal at the banquet. How many people could attend if she had \$1500 to spend?
- What would the equation become if the cost per person was raised by \$2?

23. Solve by graphing

a)  $\begin{cases} x + 2y = -4 \\ 4y = 3x + 12 \end{cases}$



b)  $\begin{cases} y = \frac{1}{2}x - 3 \\ y = \frac{3}{2}x - 1 \end{cases}$



24. Solve the following systems of equations using the substitution method.

a)  $\begin{cases} y = 3x + 2 \\ 2x + y = 12 \end{cases}$

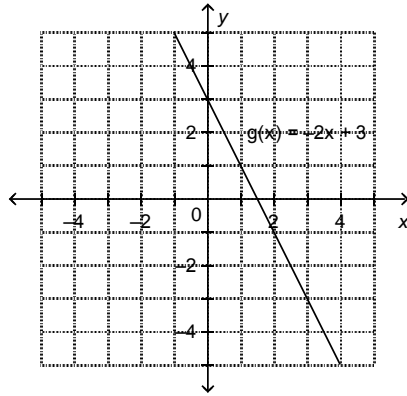
b)  $\begin{cases} x - y = 3 \\ 3x - 2y = 11 \end{cases}$

25. Solve the following systems of equations using the elimination method.

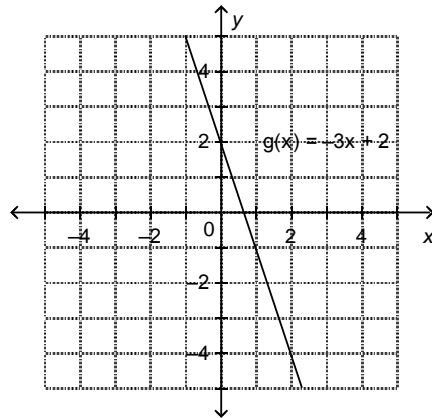
a)  $\begin{cases} -2x + y = -5 \\ 4x - y = 7 \end{cases}$

b)  $\begin{cases} 5x - 3y = -11 \\ x - 2y = -2 \end{cases}$

26. This is a graph of the function  $g(x) = -2x + 3$ . Determine the range value when the domain value is 2.



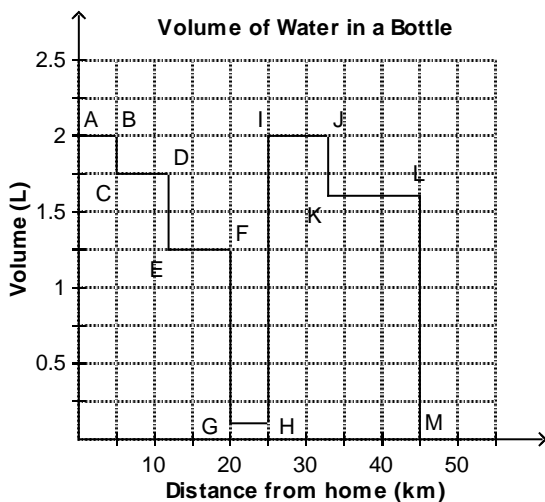
27. This is a graph of the function  $g(x) = -3x + 2$ . Determine the domain value when the range value is  $-4$ .



28. The equation  $C = 11g + 250$  represents the total cost,  $C$  dollars, for a sports banquet when  $g$  people attend.

- Write the function in function notation.
- Determine  $C(46)$ .  
What does this number (your answer) represent?
- Determine the value of  $g$  when  $C(g) = 1581$ .  
What does this number (your answer) represent?

29. This graph shows the volume of water in Katherine's water bottle as she cycles around town.  
**Describe what is happening for line segments FG, HI, and KL in the graph.**



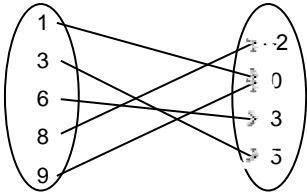
30. Write  $h(x) = -3x + 2$  as an equation in two variables.

31. Write  $y = 10x - 10$  in function notation

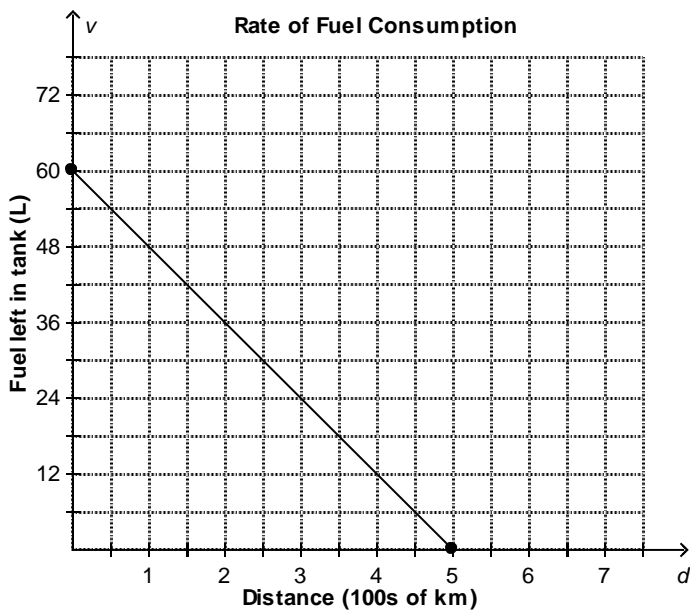
32. Identify the domain of this relation.

$$\{(8, 10), (5, 7), (9, -11), (6, -8)\}$$

33. Identify the range of this relation.



34. Determine the domain and range of the graph.



35. Which of these numbers is rational?

$$\sqrt{\frac{4}{169}}, \sqrt{48}, \sqrt[3]{-16}, \sqrt{8.1}$$

36. Is the cube root of 250 rational or irrational?  
Justify your answer.

37. Order these numbers from least to greatest:  $\sqrt[3]{75}$ ,  $\sqrt{14}$ ,  $\sqrt[3]{100}$ ,  $\sqrt{17}$ ,  $\sqrt[3]{30}$

38. What is the distance between the points (3, 5) and (10, 15)?

39. What is the midpoint between the points  $S(-3, 6)$  and  $T(5, 7)$ ?