Today's Plan:

Learning Target (standard): I will review functions.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work and complete practice problems on functions.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of review concepts and assign students assessment problems over functions.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in review problems, practice review concepts with the aid of other students and the teacher and complete homework assignment.

p.414 #12-32 even

$12) v = 32 revolutions$

$14) 16.26 amps$

$16) l = 18 lumens$

$18) f = 36 vibrations$

$20) P = 200 watts$

$22) \min = -\frac{25}{4}$

$24) \max = \frac{9}{4}$

$26) \min = -\frac{13}{4}$

$28) \max = \frac{33}{8}$

$30) s = 150\,ft$

$32) h = 24.36\,ft$

The distance *(d)* a person can see to the horizon from a point above the surface of Earth varies directly as the square root of the height *(H)*. If, for a height of 500 ft, the horizon is 19 miles away, how far is the horizon from a point that is 800 ft high? Round to the nearest hundredth.

① $d = k\sqrt{H}$

② $19 = k\sqrt{500}$

$19 = 22.361k$

$k = 0.84971$

③ $d = 0.84971\sqrt{H}$

④ $d = 0.84971\sqrt{800}$

$d = 0.84971(28.2843)$

$d = 24.03 \text{ mi}$

The length *(L)* of a rectangle of fixed area varies inversely as the width *(w)*. If the length of a rectangle is 10 ft when the width is 4 ft, find the length of the rectangle when the width is 5 ft.

① $L = \frac{k}{w}$

② $10 = \frac{k}{4}$

$k = 40$

③ $L = \frac{40}{w}$

④ $L = \frac{40}{5}$

$L = 8 \text{ ft}$

$f(x) = x^2 + x + 2$

$f(4+h) - f(4) =$

$f(4) = (4)^2 + (4) + 2$

$= 16 + 4 + 2$

$f(4) = 22$

$f(4+h) = (4+h)^2 + (4+h) + 2$

$= (4+h)(4+h) + 4 + h + 2$

$= 16 + 4h + 4h + h^2 + 4 + h + 2$

$f(4+h) = h^2 + 9h + 22$

$f(4+h) - f(4) = h^2 + 9h + 22 - 22$

$f(4+h) - f(4) = h^2 + 9h$

Find the range of the function.

$f(x) = 3x^2 - 2x - 3$

domain = {-2, -1, 3, 5}

$f(-2) = 3(-2)^2 - 2(-2) - 3$

$= 12 + 4 - 3$

$f(-2) = 13$

$f(-1) = 3(-1)^2 - 2(-1) - 3$

$= 3 + 2 - 3$

$f(-1) = 2$

$f(3) = 3(3)^2 - 2(3) - 3$

$= 27 - 6 - 3$

$f(3) = 18$

$f(5) = 3(5)^2 - 2(5) - 3$

$= 75 - 10 - 3$

$f(5) = 62$

R: {2, 13, 18, 62}

Find the exclusions from the domain. Use those to find the domain of the function.

$$f(x)=\frac{3x+1}{x^2-2x-3}$$

$x^2-2x-3=0$

$(x+1)(x-3)=0$

$x=-1,3$

3

1 -3 = -2

exclusions: $x=-1,3$

D: $\{x \mid x \neq -1,3\}$

Find the minimum or maximum value of the function.

$$f(x)=-3x^2+4x-2$$

opens down → maximum

$x=\frac{-b}{2a}=\frac{-4}{2(-3)}=\frac{-4}{-6}=\frac{2}{3}$

$f(\frac{2}{3})=-3(\frac{2}{3})^2+4(\frac{2}{3})-2$

$=-3(\frac{4}{9})+\frac{8}{3}-2$

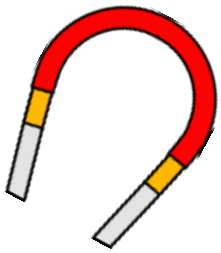
$=-\frac{4}{3}+\frac{8}{3}-2$

$=\frac{4}{3}-\frac{6}{3}$

$f(\frac{2}{3})=-\frac{2}{3}$

max $=-\frac{2}{3}$

The repulsive force *(f)* between the north poles of two magnets is inversely proportional to the square of the distance *(d)* between them. If the repulsive force is 18 lb when the distance is 3 inches, find the repulsive force when the distance is 1.2 inches.



① $f = \frac{k}{d^2}$

② $18 = \frac{k}{3^2}$

$18 = \frac{k}{9}$

$k = 162$

③ $f = \frac{162}{d^2}$

$f = \frac{162}{(1.2)^2}$

$f = \frac{162}{1.44}$

$f = 112.5 \text{ lb}$

Assignment:

p.422 #2-30 even