§1.2 #s 1–87, 93, 95, 97, 101

§1.3 #s 1–69 odds

§1.1 # 9, 23, 57b

§1.2 # 61

§1.3 # 57b, 33

1.1 #9 1, 8, 27, 64   See #6

$1^3, 2^3, 3^3, 4^3,$

#23 $1, \frac{3}{2}, 2, \ldots$ Next term is ...

$\frac{3}{2} - 1 = \frac{1}{2}, \quad 2 - \frac{3}{2} = \frac{1}{2} =$ c.d. = common difference

... $2 + \frac{1}{2} = \frac{2}{1} + \frac{1}{2} = \frac{2}{1} \cdot \frac{2}{2} + \frac{1}{2} = \frac{4+1}{2} = \frac{5}{2}$

$2\frac{1}{2} = 2 + \frac{1}{2}$

$ab = a \cdot b$

$\boxed{57a}$ $3 + 2(2 \cdot 3^2 + 1)$

$= 3 + 2(18 + 1)$

$= 3 + 2(19)$

$= 3 + 38 = 41$

In this one, the "3+" part is the last thing, by order of ops.

$\boxed{57b}$ $(3+2)(2 \cdot 3^2 + 1)$

$= 5(2 \cdot 9 + 1)$

$= 5(18 + 1)$

$= 5(19)$

$= \boxed{95}$

This time, the parentheses oblige me to add the 3+2, first.

http://www.mathtv.com/videos_by_textbook?id=4#

§1.2 #61 $(5x^3)(7x^4)$ xyz Books.

$= (5\cdot 7)(x^3 \cdot x^4)$

$= 35x^{3+4} = 35x^7$

But what about...

$(5x)^3(7x)^4$ This one, we have the powers OUTside the products

$= (5^3x^3)(7^4x^4)$ Different from #61

$5^3 \cdot 7^4 x^7 = 300{,}125x^7$

```
5^3*7^4
                300125
```

§1.2 # 61

§1.3 # 57b, 33

$(x)(-2) = (-2)(x)$
$= -2x$

$(x-3)(x-2)+2$

$$\boxed{\begin{aligned}&= (x-3)(x) + (x-3)(-2) + 2\\&= x\cdot x - 3\cdot x + x\cdot -2 - 3\cdot -2 + 2\\&= (x)(x) - 3x - 2x + 6 + 2\end{aligned}}$$

$= x^2 - 5x + 8$

$= x^2 - 2x - 3x + 6 + 2$

$= x^2 - 5x + 6 + 2$

$= x^2 - 5x + 8$

57b $\quad y = -\frac{11}{2} \Longrightarrow y(2y+3)$

$= -\frac{11}{2}\left(\cancel{2}\left(-\frac{11}{\cancel{2}}\right)+3\right)$

$= -\frac{11}{2}(-11+3)$

$= -\frac{11}{\cancel{2}_{1}}(-\cancel{8}^{4}) = (-11)(-4)$

$= 44$

Revenue = Price times quantity sold

$= p \cdot x$, where

$= xp$

p = price, in dollars,

x = number of thingamajigs sold

#102 §1.2

Store sells radios and finds that

~~price = p =~~

the number sold = $\boxed{x = 1300 - 100p}$

where p = price in dollars.

What's the revenue, for a typical price?

$R = xp =$

$$\boxed{R = (1300 - 100p)p}$$

$x = 1300 - 100 = 1200$

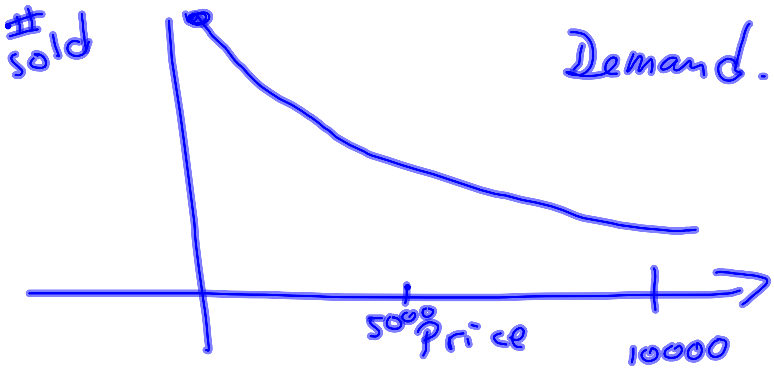
$= 1300 - 100(10)$

$= 300$

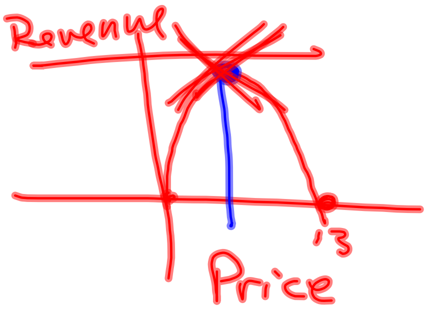
we substitute the expression in p for the variable x. That gives R in terms of price.

$1300 = 100p$

$p = \frac{1300}{100} = 13$



Demand.



Find $3x-7$ if $x=4$

"Plug in $x=4$, silly!"

32 $x=4 \Longrightarrow 3x-7 = 3(4)-7 = 12-7 = 5.$

"implies"

---

62 §1.3

$x=3, y=11 \Longrightarrow .25x + .1y = .25(3) + .1(11)$

$= .75 + 1.1$

$= 1.85$

$$\begin{array}{r} .75 \\ 1.1 \\ \hline 1.85 \end{array}$$

What's the fuss over b^2-4ac in #s63-4?

$ax^2+bx+c=0$

$\Longrightarrow$

$$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

Quadratic Formula

b^2-4ac is what goes under the radical.

b^2-4ac is the radicand

b^2-4ac is discriminant

1st step to using quadratic formula is mastering the evaluation of b^2-4ac,

#64 Find b^2-4ac when $a=-3, b=-4, c=2$

$b^2-4ac = (-4)^2 - 4(-3)(2)$

$= (-4)(-4) - 4(-6)$

$= +16 + 24$

$= 40$

$ax^2+bx+c=0$

I Like: "Suppose $3x^2-7x+11=0$

Compute the discriminant."

$a=3, b=-7, c=11 \Longrightarrow$

$b^2-4ac = (-7)^2 - 4(3)(11)$

$= 49 - 132$

$= -83$

$$x = \frac{7 \pm \sqrt{-83}}{2(3)}$$

is not real

§1.1, 1.2 Turn in Wednesday. Top of hour
§1.3 Turn in after questions.

Here's the reason for factoring:

Magic # = (1)(6) = 6 = (3)(2)

x^2+5x+6

$= (x+3)(x+2)$

$= x^2+2x+3x+6$

$= x^2+5x+6$ ✓

x+2 is a factor, so $x=-2$ makes the whole thing ZERO

x+3 is a factor, so $x=-3$ makes $x^2+5x+6=0$ a true statement.

What if you suck at factoring?

$x^2+5x+6=0$

$a=1, b=5, c=6$

$b^2-4ac = 5^2-4(1)(6)$

$= 25-24$

$= 1$

$$x = \frac{-b\pm\sqrt{b^2-4ac}}{2a} = \frac{-5\pm\sqrt{1}}{2(1)} = \frac{-5\pm 1}{2}$$

$\frac{-5+1}{2} = \frac{-4}{2} = -2$

$\frac{-5-1}{2} = \frac{-6}{2} = -3$

This means

$x^2+5x+6=0$, when $x=-2$ OR $x=-3$.

That means
$(x+2)(x+3) = x^2+5x+6$

§ 1.4 We'll learn how to factor trinomials, by hook or crook.

Special Products

Difference of 2 squares

$a^2 - b^2 = (a-b)(a+b)$

$(a-b)(a+b) = a^2 + ab - ab + b^2$

$= a^2 - b^2$

$$a^2-b^2 = (a-b)(a+b)$$

$$9x^2-16 = 3^2x^2-4^2$$

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

$$= (3x-4)(3x+4)$$

~~Sum of Squares~~

$\cancel{a^2+b^2}$ ~~Does not factor!~~

Sum of cubes

$$a^3+b^3 = (a+b)(a^2-ab+b^2)$$

Difference of cubes

$$a^3-b^3 = (a-b)(a^2+ab+b^2)$$

Square of binomial

$$(a+b)^2 = a^2+2ab+b^2$$