Left off on Compound Interest.

P = Principal ($)
r = Annual Interest rate
t = time in years
n = # of periods per year
A = Accumulated Amount

$A = P\left(1 + \frac{r}{n}\right)^{nt}$

P = \$100, $r = .08 = 8\% = \frac{8}{100}$, n = 1 period per year. Interest compounded yearly.

Period	Amt
0	100
1	$100 + .08(100) = 100(1+.08) = \boxed{100(1.08)}$
2	$100(1.08) + .08(100(1.08)) = 100(1.08)[1+.08] = 100(1.08)(1.08)$ $100(1.08)(1) + .08(100(1.08)) =$ $= 100(1.08)^2$
3	$100(1.08)^3 = 100(1+.08)^3$
⋮	
n	$100(1.08)^n = 100(1+.08)^n$ $= P(1+r)^t = A$

when interest is compounded at the end of every year.

what if it's compounded monthly?

$P\left(1+\frac{r}{n}\right)^{nt}$

$P\left(1+\frac{.08}{12}\right)^{12 \cdot t}$

Calculator moves.

Interest rate is 8% compounded weekly.
$500 is placed in savings
what's the value after 10 years?

$A = P(1 + \frac{r}{n})^{nt}$

$= 500(1 + \frac{.08}{52})^{52 \cdot 10} \approx \$1112.09$

Notice the parentheses around the 52·10!

Hierarchy of Operations

```
500*(1+.08/52)^(
52*10)
      1112.086594
```

GOOD

```
2*10
      5416.102371
500*(1+.08/52)^5
2
      541.6102371
Ans*10
      5416.102371
```

BAD

See? This is WRONG!

Quiz Friday from Homework

§2.1-2.3

§2.4 Linear Inequalities

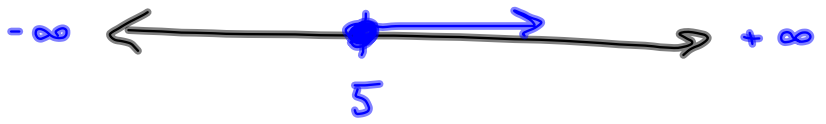
Bad:

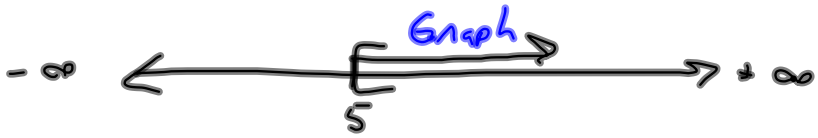
MWF 8-10, 12-1

T 9-10, 12-1

for #s 1-10 Graph & write in interval notation

$\{x \mid x \geq 5\}$



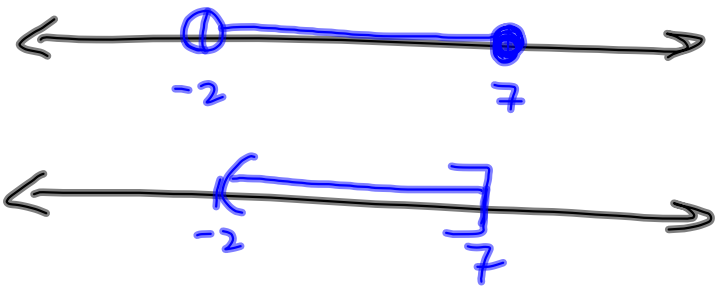


$[5, \infty)$

Interval

Assign: #s 1, 4, 7, ..., 70

$\{t \mid -2 < t \leq 7\}$



$(-2, 7]$ shorthand for the graph.

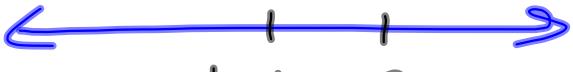
#s 11-22 Graph, write in interval Notation

ALSO WANT SET-BUILDER notation.

$-2x + 7 \geq 9$

$-7 = -7$

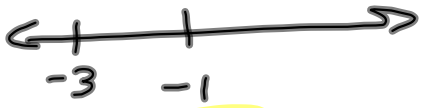
$-2x \geq 2$



Flip It!

$1 < 3$

$\frac{-2x}{-2} \leq \frac{2}{-2}$ Flip it!



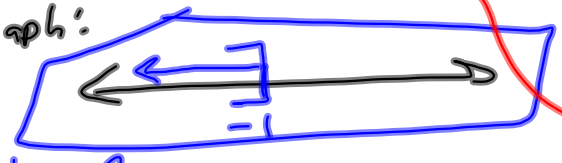
$-1 > -3$

$x \leq -1$

SET-BUILDER:

$\{x \mid x \leq -1\}$ = set of all x such that $x \leq -1$.

Graph:



Also do the set-builder for these.

Interval:

$(-\infty, -1]$

#32 $\frac{1-2x}{3} + \frac{3x+7}{7} > 1$

LCD = 7·3 = 21

$\Rightarrow \frac{1-2x}{3}\cdot\frac{7}{7} + \frac{3x+7}{7}\cdot\frac{3}{3} > \frac{1}{1}\cdot\frac{21}{21}$

$\frac{(1-2x)(7)+(3x+7)(3)}{21} > \frac{21}{21}$

Now, can we ditch the denominator? Yes. This way avoids problems later.

$7-14x+9x+21 > 21$

$-5x+28 > 21$

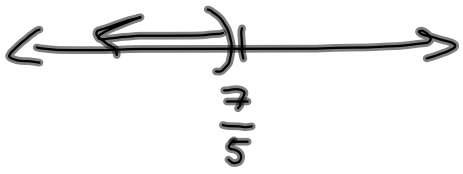
$-28 = -28$

$-5x > -7$

$\frac{-5x}{-5} < \frac{-7}{-5}$

$x < \frac{-7}{-5} = \frac{7}{5}$

$\{x \mid x < \frac{7}{5}\}$ Set-builder



$(-\infty, \frac{7}{5})$

Test Average. Final counts as 2 tests.
Wants AT LEAST 77% average.
4 tests, so far: 72, 67, 82, 79
what's he need on his final?

$$\frac{72+67+82+79}{4} = 75$$

Average with the final:

$$\frac{4(75)+2x}{6} \geq 77$$

want

My way:

$$\frac{72+67+82+79+2x}{6} \geq 77$$