

Math 60, Wednesday 4/16

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Q's on 1.7

New material 1.8

How to study for a test - study skills

Review Sheet for 1st test handed out

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Checkpoint 3 on Friday

1st Test/Boss Monday

Scavenger Hunt due Monday

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Q's 119. a) 50%

1.7

$$\begin{aligned} b) \quad A &= -n + 70 \\ &= -20 + 70 \\ &= 50\% \end{aligned}$$

1980 = base year  
 $n = 2000 - 1980$   
20 years

97  
103  
117  
35

The percentage is the same

$$c) \quad 20 - 22\%$$

$$\begin{aligned} d) \quad M &= -.5n + 28 \\ &= -.5(20) + 28 \\ &= -10 + 28 \\ &= 18\% \end{aligned}$$

The model is 2% lower than the data.

$$\text{Ratio} = \frac{4}{5}$$

$$e) \quad R = \frac{M}{A} = \frac{-0.5n + 28}{-n + 70}$$

35.

4  $\Rightarrow$

multiplicative inverse  
 $\frac{1}{4}$  reciprocal

$$\begin{aligned}
 97. \quad 4x &= 2x - 10; -5 \\
 4(-5) &\stackrel{?}{=} 2(-5) - 10 \\
 -20 &\stackrel{?}{=} -10 - 10 \\
 -20 &= -20 \\
 -5 &\text{ is a solution}
 \end{aligned}$$

$$\begin{aligned}
 117. \quad C &= \frac{5}{9}(F - 32) \\
 F &= -22^\circ \text{F}
 \end{aligned}$$

$$\begin{aligned}
 C &= \frac{5}{9}(-22 - 32) \\
 &= \frac{5}{9}(-54) \\
 &= -30^\circ \text{F}
 \end{aligned}$$

$$\begin{aligned}
 C &= \frac{5}{9}(70 - 32) \\
 &= \frac{5}{9}(38) \\
 &= \frac{190}{9} \\
 &= 21.\bar{1} \\
 &\approx 21^\circ \text{C}
 \end{aligned}$$

## 1.8 Exponents and Order of operations

$2^5$  ← exponent  
 $2$  ← base

$$\begin{aligned}
 &= 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \\
 &= 32
 \end{aligned}$$



$$2^{\square} = 1,000,000$$

$$2^{100}$$

$$2^{500}$$

$$2^{307}$$

$$2^{1000}$$

$$2^{50}$$

$$2^{20} \approx 1,000,000$$

$$2. \quad 3^2 = 9$$

with parentheses

6.

$$\begin{aligned} &(-10)^2 \\ &= (-10)(-10) \\ &= 100 \end{aligned}$$

even power  
positive

$$\begin{aligned} &(-10)^3 \\ &= (-10)(-10)(-10) \\ &= -1000 \end{aligned}$$

odd power  
negative

negative base  $\rightarrow$  use the even/odd rule

~~\*~~  
w/o parentheses  
one negative sign  
Always negative

$$\begin{aligned} &-10^2 \\ &= -10 \cdot 10 \\ &= -100 \end{aligned}$$

$$\begin{aligned} &-10^3 \\ &= -10 \cdot 10 \cdot 10 \\ &= -1000 \end{aligned}$$

$$10. \quad (-1)^6 = (-1)(-1)(-1)(-1)(-1)(-1) = 1$$

$$14. \quad -(8^2) = -64$$

## Expressions

$$16. \quad \boxed{6x^2} + \boxed{18x^2} \text{ like terms} \\ = 24x^2$$

$$6x + 18x \\ = 24x$$

$$7\boxed{x} + 3\boxed{x^2} \text{ not like terms} \\ = \text{cannot be simplified}$$

$$7x^2 + 4y^2 \\ \text{cannot be simplified}$$

$$28. \quad 34x^2 - 1x^2 \\ = 33x^2$$

## Order of operations

$$32. \quad \underline{40 \div 4} \cdot 2 \\ = 10 \cdot 2 \\ = 20$$

P  
E  
M  
D  
A  
S

Left to Right  
Left to Right

$$36. \quad 36 - \underline{12 \div 4} + 2 \\ = \underline{36 - 3} + 2 \\ = 33 + 2 \\ = 35$$

$$40. \quad 5(-3)^2 - 2(-4)^2 \\ = 5 \cdot 9 - 2 \cdot 16 \\ = 45 - 32 \\ = 13$$

$$\begin{aligned}
 52. & [11 - 4(2 - 3)] \div 37 \\
 & = [11 - 4(2 - 27)] \div 37 \\
 & = [11 - 4(-25)] \div 37 \\
 & = [11 + 100] \div 37
 \end{aligned}$$

$$\begin{aligned}
 & \rightarrow 111 \div 37 \\
 & = 3
 \end{aligned}$$

$$56. \frac{(22 + 20 \div (-5))}{(3^2)}$$

$$\begin{aligned}
 & [11 - (-100)] \div 37 \\
 & 111 \div 37
 \end{aligned}$$

$$= \frac{22 + (-4)}{9}$$

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

$$= 2$$

Evaluate Expressions

$$74. \quad x^2 - 2x ; \quad x = 6$$

$$= 6^2 - 2 \cdot 6$$

$$= 36 - 12$$

$$= 24$$

$$78. \quad -x^2 - 14x ; \quad x = -1$$

$$= -(-1)^2 - 14(-1)$$

$$= -1 + 14$$

$$= 13$$

put negative numbers in ( ) when you evaluate

Simplifying Expressions

82.

$$\begin{aligned}
 & 4[6(x-3) + 1] \\
 & = 4[6x - 18 + 1]
 \end{aligned}$$

order of ops

$$= 4[6x - 17]$$

$$= 24x - 68$$