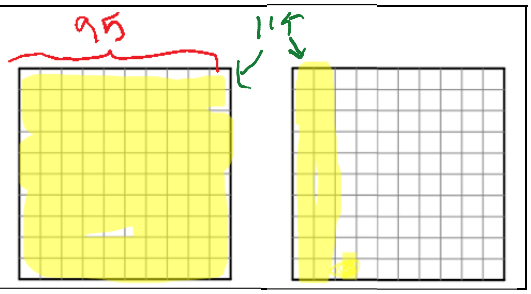
Answers:

1. What percent is 210 more than 95?

(210-95) is ____ percent of 95?
115 is ___ percent of 95

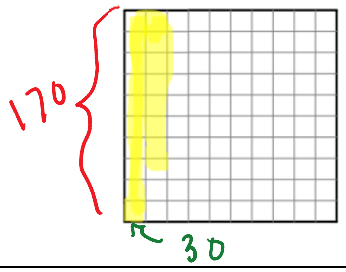
Algebraically:	*With grid:*
$115 = x \cdot 95$ $\frac{115}{95} = \frac{x \cdot 95}{95}$ $x = 1.21$ 121%	□=95/100=.95 $\frac{115}{.95} = 121\%$



2. What percent is 140 less than 170?

(170-140) is ___ % of 170?
30 is __ % of 170?

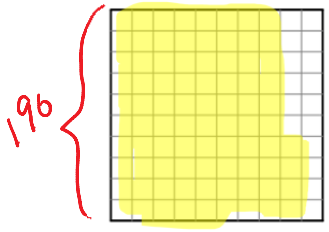
Algebraically:	*With grid:*
$30 = x \cdot 170$ $\frac{30}{170} = \frac{x \cdot 170}{170}$ $x = .176$ 17.6%	□=170/100=1.7 $\frac{30}{1.7} = 17.6\%$



3. What percent is 160 of 190?

160 = __% of 190?

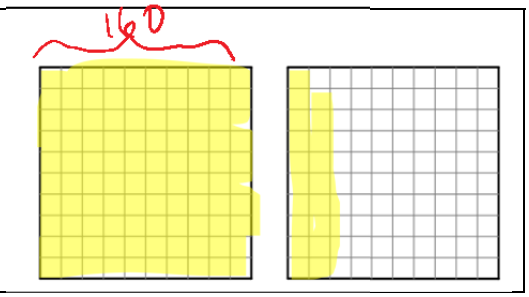
Algebraically:	*With grid:*
$160 = x \cdot 190$ $\frac{160}{190} = \frac{x \cdot 190}{190}$ $x = .842$ 84.2%	□=190/100=1.9 $\frac{160}{1.9} = 84.2\%$



4. What percent is 190 of 160?

190=__% of 160?

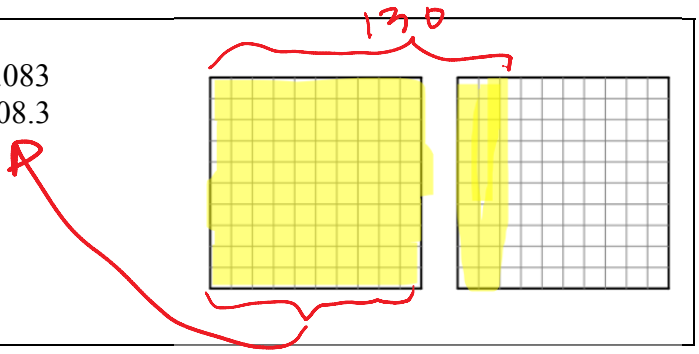
Algebraically:	*With grid:*
$190 = x \cdot 160$ $\frac{190}{160} = \frac{x \cdot 160}{160}$ $x = 1.1875$ 118.75%	□=160/100=1.6 $\frac{190}{1.6} = 118.75\%$



5. 130 is 20% more than what?

130 is 120% of ___?

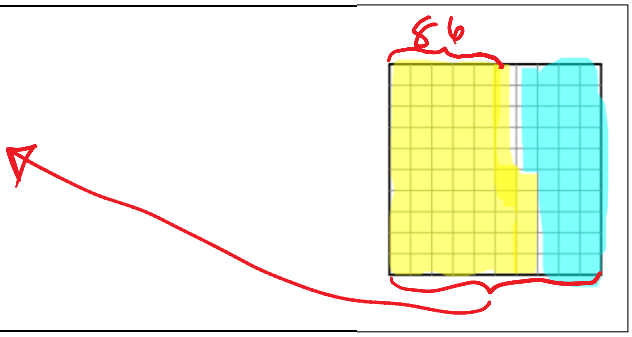
Algebraically:	*With grid:*
$130 = \frac{120}{100} \cdot x$ $130 = 1.2x$ $\frac{130}{1.2} = \frac{1.2x}{1.2}$ $x = 108.3$	□=130/120=1.083 $100 \cdot 1.083 = 108.3$



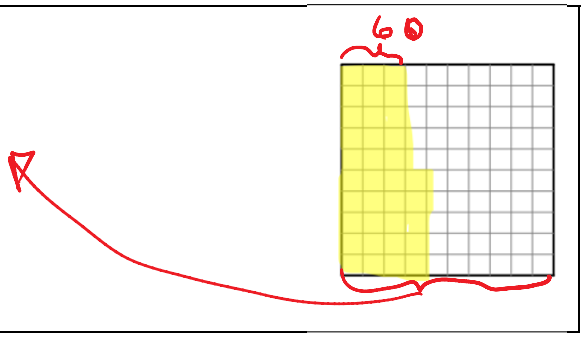
6. 86 is what 35% less than what?

86 is 65% of ___?

Algebraically:	*With grid:*
$86 = \frac{65}{100} \cdot x$ $86 = .65x$ $\frac{86}{.65} = \frac{.65x}{.65}$ $x = 132.3$	□=86/65=1.323 $100 \cdot 1.323 = 132.3$

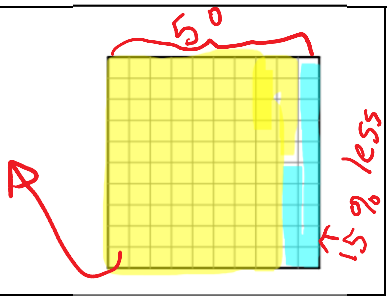


7. 60 is 35% of what?

Algebraically:	*With grid:*
$60 = \frac{35}{100} \cdot x$ $60 = .35x$ $\frac{60}{.35} = \frac{.35x}{.35}$ $x = 171.4$	□=60/35=1.714 $100 \cdot 1.714 = 171.4$ 

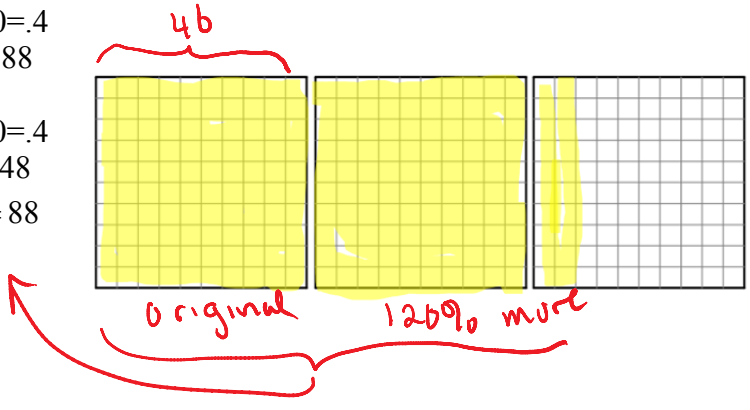
8. 15% less than 50 is what?

___=85% of 50

Algebraically:			*With grid:*
$x = \frac{85}{100} \cdot 50$		$x = \frac{15}{100} \cdot 50$	□=50/100=.5 $85 \cdot 0.5 = 42.5$ 
$x = .85 \cdot 50$	or do	$x = .15 \cdot 50$	
$x = 42.5$		$x = 7.5$	
		$50 - 7.5 = 42.5$	

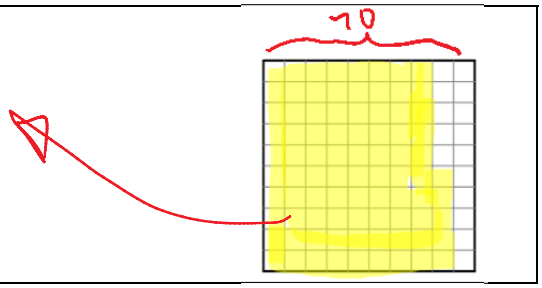
9. 120% more than 40 is what?

220% of 40 is ___

Algebraically:	*With grid:*
$x = \frac{220}{100} \cdot 40$ $x = 2.2 \cdot 40$ $x = 88$ or do $x = \frac{120}{100} \cdot 40$ $x = 1.2 \cdot 40$ $x = 48$ $40 + 48 = 88$	□=40/100=.4 $220 \cdot .4 = 88$ or □=40/100=.4 $120 \cdot .4 = 48$ $40 + 48 = 88$ 

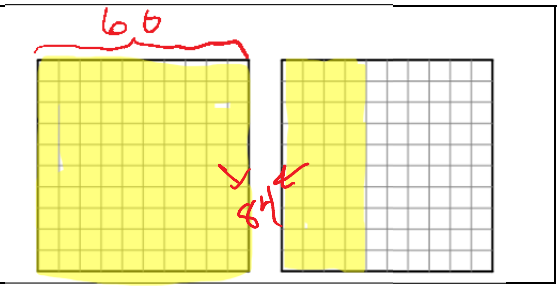
10. 85% of 70 is what?

Algebraically:	*With grid:*
$x = \frac{85}{100} \cdot 70$ $x = .85 \cdot 70$ $x = 59.5$	□=70/100=.7 $85 \cdot .7 = 59.5$



11. 140% of 60 is what?

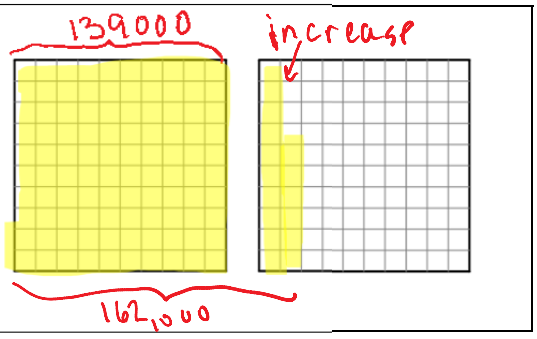
Algebraically:	*With grid:*
$x = \frac{140}{100} \cdot 60$ $x = 1.4 \cdot 60$ $x = 84$	□=60/100=.6 $140 \cdot .6 = 84$



12. The value of a house increased from $139,000 to $162,000 over 10 years. By what percent did the value increase?

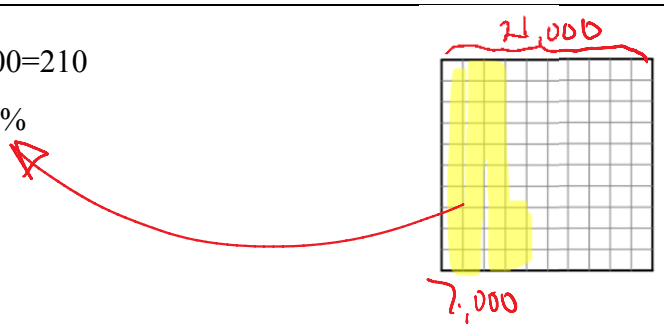
$162,000 is __% more than $139,000
(162,000 - 139,000) is __ % of 139,000
23,000 is ___% of 139,000

Algebraically:	*With grid:*
$23,000 = x \cdot 139,000$ $\frac{23,000}{139,000} = \frac{x \cdot 139,000}{139,000}$ $x = .165 = \frac{16.5}{100}$ $x = 16.5\%$	□=139,000/100=1390 $\frac{23,000}{1390} = 16.5\%$



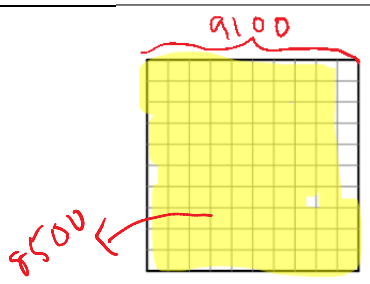
13. The value of a car decreased from $21,000 to $14,000 over 4 years. By what percent did the value decrease?

14,000 is ____% less than 21,000
(21,000-14,000) is ___ % of 21,000
7,000 is ___% of 21,000

Algebraically:	*With grid:*
$7000 = x \cdot 21{,}000$ $\frac{7000}{21{,}000} = \frac{x \cdot 21{,}000}{21{,}000}$ $x = .333 = \frac{33.3}{100}$ 33.3%	□=21,000/100=210 $\frac{7000}{210} = 33.3\%$ 

14. The number of farmed acres of land in a county decreased from 9100 to 8500. What percent of the original farm land is still being farmed?

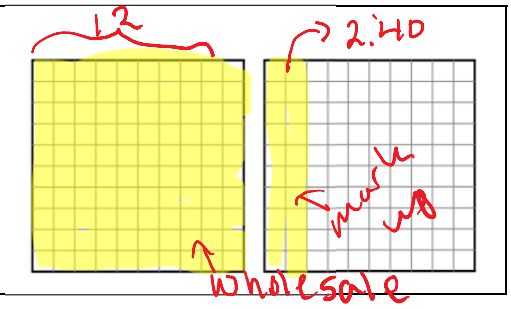
8500 is ___% of 9100

Algebraically:	*With grid:*
$8500 = x \cdot 9100$ $\frac{8500}{9100} = \frac{x \cdot 9100}{9100}$ $x = .934 = \frac{93.4}{100}$ 93.4%	□=9100/100=91 $\frac{8500}{91} = 93.4\%$ 

15. The wholesale price of an item is marked up by 20%. If the wholesale price was $12.00, what is the retail price?

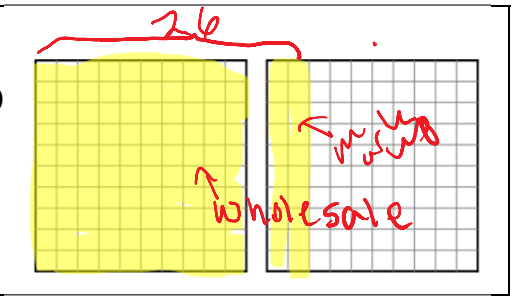
___ is 20% more than $12.
___ is 120% of $12

Algebraically:		*With grid:*
$x = \frac{120}{100} \cdot 12$	$x = \frac{20}{100} \cdot 12$	□=12/100=.12 $120 \cdot .12 = \$14.40$ or do □=12/100=.12 $20 \cdot .12 = 2.40$ $12 + 2.40 = \$14.40$
$x = 1.2 \cdot 12$ or do	$x = 1.2 \cdot 12$	
$x = \$14.40$	$x = \$2.40$	
	$12 + 2.40 = \$14.40$	



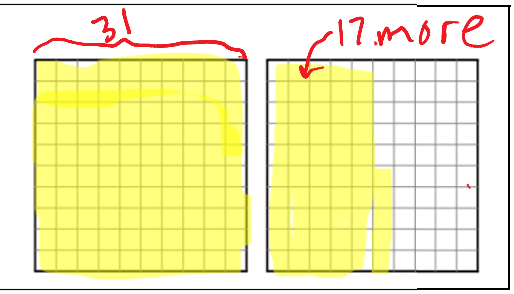
16. The wholesale price of an item is marked up by 20%. If the retail price is $26, what was the was the wholesale price?

26 is 20% more than _____
26 is 120% of ____

Algebraically:	*With grid:*
$26 = \frac{120}{100} \cdot x$ $26 = 1.2 \cdot x$ $\frac{26}{1.2} = \frac{1.2 \cdot x}{1.2}$ $x = \$21.70$	□=26/120=.217 $.217 \cdot 100 = \$21.70$ 

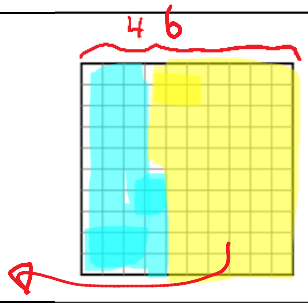
17. The wholesale price of an item is $31, and the retail price is $48. By what percent was the wholesale price marked up?

48 is ___% more than 31
(48-31) is ___% of 31
17 is ___% of 31

Algebraically:	*With grid:*
$17 = x \cdot 31$ $\frac{17}{31} = \frac{x \cdot 31}{31}$ $x = .548 = \frac{54.8}{100}$ $x = 54.8\%$	□=31/100=.31 $\frac{17}{.31} = 54.8\%$ 

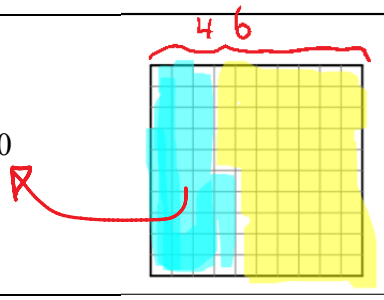
18. An item is on sale 35% off. If the regular price is $46, what is the sale price?

___ is 35% less than $46
___ is 65% of $46

Algebraically:			*With grid:*
$x = \frac{65}{100} \cdot 46$		$x = \frac{35}{100} \cdot 46$	□=46/100=.46 $65 \cdot 0.46 = 29.90$ or □=46/100=.46 $35 \cdot .46 = 16.10$ $46 - 16.10 = \$29.90$ 
$x = .65 \cdot 46$	or do	$x = .35 \cdot 46$	
$x = \$29.90$		$x = 16.10$	
		$46 - 16.10 = \$29.90$	

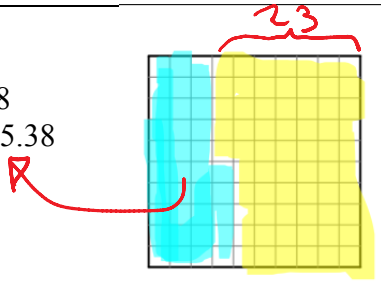
19. An item is on sale 35% off. If the regular price is $46, what is the discount?

___=35% of 46

Algebraically:	*With grid:*
$x = \frac{35}{100} \cdot 46$ $x = .35 \cdot 46$ $x = \$16.10$	□=46/100=.46 $35 \cdot .46 = \$16.10$ 

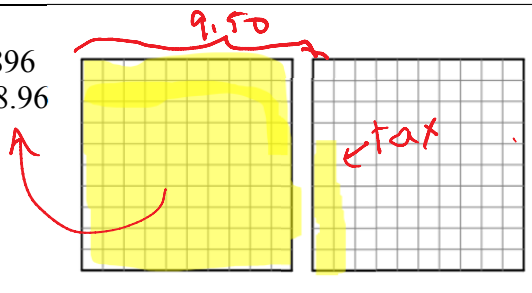
20. An item is on sale 35% off. If the sale price is $23, what is the regular price?

23 is 35% less than ____
23 is 65% of ____

Algebraically:	*With grid:*
$23 = \frac{65}{100} \cdot x$ $23 = .65 \cdot x$ $\frac{23}{.65} = \frac{.65 \cdot x}{.65}$ $x = \$35.38$	□=23/65=.3538 $100 \cdot .3538 = \$35.38$ 

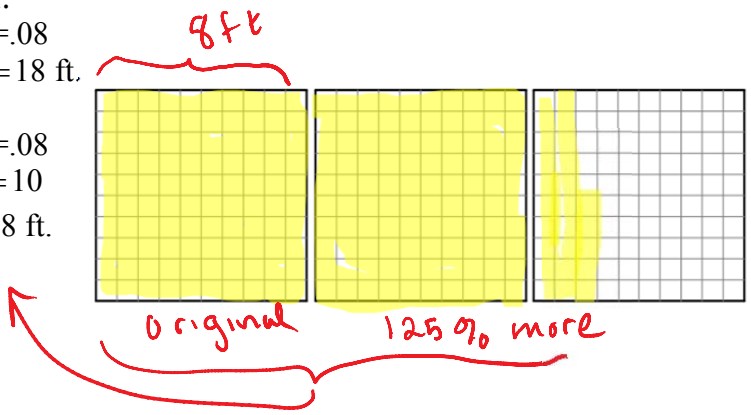
21. An item costs $9.50 including 6% sales tax. What is the before tax price?

$9.50 is 6% more than ___
$9.50 is 106% of ____

Algebraically:	*With grid:*
$9.5 = \frac{106}{100} \cdot x$ $9.5 = 1.06x$ $\frac{9.5}{1.06} = \frac{1.06x}{1.06}$ $x = \$8.96$	□=9.5/106=.0896 $100 \cdot .0896 = \$8.96$ 

22. A tree increased in height by 125% over 10 years. If its height was 8 feet, how tall is it now?

___ is 125% more than 8.
___ is 225% of 8

Algebraically:	*With grid:*
$x = \frac{225}{100} \cdot 8$ $x = 2.25 \cdot 8$ $x = 18$ ft. or do $x = \frac{125}{100} \cdot 8$ $x = 1.25 \cdot 8$ $x = 10$ $8 + 10 = 18$ ft.	□=8/100=.08 $225 \cdot .08 = 18$ ft. or □=8/100=.08 $125 \cdot .08 = 10$ $8 + 10 = 18$ ft. 

23. A bean plant increased in height by 240% over 2 weeks. If its height is now 5 feet, how tall was it 2 weeks ago?

5 is 240% more than ___
5 is 340% of ___

Algebraically:	*With grid:*
$5 = \frac{340}{100} \cdot x$ $\frac{5}{3.4} = \frac{3.4 \cdot x}{3.4}$ $x = 1.47$ ft.	□=5/340=.0147 $100 \cdot .0147 = 1.47$ ft.