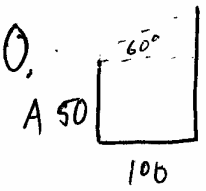
0. 

~~$B = 50 + \frac{100}{\sqrt{3}}$~~

$B = 50 + 100\sqrt{3}$

1. To have exactly 3 factors, it must be the square of a prime number.
$2^2, 3^2, 5^2, 7^2, 11^2, 13^2 \Rightarrow 6$

2. If it factors to $(x-r_1)(x-r_2)$,
$32 = r_1 r_2$.

3. II & V aren't divisible by 2
I & III, aren't divisible by 3
$6 - 4 = 2$

4. $m = \frac{68-8}{-2-3} = \frac{60}{-5} = -12$
$y = -12x + 44$
$0 = -12x + 44 \Rightarrow x = \frac{44}{12} = \frac{11}{3}$
$(\frac{11}{3}, 0)$

5. $252 = 2^2 \cdot 3^2 \cdot 7$
$426 = 2^1 \cdot 3^1 \cdot 71$
$GCF = 2^1 \cdot 3^1 = 6$

6. $6e^2 = 486$
$e^2 = 81$
$e = 9 \Rightarrow V = e^3 = 9^3 = 729$

7. $.3 \cdot 40 + .7 \cdot 80$
$12 + 56 = 68$

8. $3(2x - 3y = -16)$
$-2(3x - y = -17)$
$-7y = -14$
$y = 2$

9. $3 \cdot 34 \to 3 \cdot 66$
$3\sum_{34}^{66} = 3 \cdot \left(\frac{66 \cdot 67}{2} - \frac{33 \cdot 34}{2}\right)$
$= 3 \cdot 33 \cdot 50 = 99 \cdot 50 = 4950$

10. $\frac{s^2\sqrt{3}}{4} = 24\sqrt{3}$
$s^2 = 96$
$s = 4\sqrt{6}$

11. $r = \frac{\frac{15}{2}}{\frac{5}{6}} = \frac{15}{2} \cdot \frac{6}{5} = 9$
5th term $= ar^4 = 9^4 \cdot \frac{5}{6}$
$= \frac{81 \cdot 27 \cdot 5}{2} = \frac{2187 \cdot 5}{2} = \frac{10935}{2}$

12. $\frac{15-8}{\frac{20}{5}} \cdot \frac{24^6}{4+6} = \frac{7 \cdot 6^3}{5 \cdot 10_5} = \frac{21}{25}$

13. $\frac{\binom{4}{3}+\binom{3}{3}}{\binom{7}{3}} = \frac{4+1}{\frac{7\cdot 6\cdot 5}{3\cdot 2}} = \boxed{\frac{1}{7}}$

14. $\sum_{1}^{100} - 5\sum_{1}^{20}$

$\frac{50\cdot 101}{2} - \frac{5\cdot 10\cdot 21}{2}$

$50\cdot 80 = \boxed{4000}$

15. 

$\frac{1}{3}\pi 6^2\cdot 12 - \frac{1}{3}\pi 3^2\cdot 6$

$\frac{1}{3}\pi(432-54)$

$\frac{\pi}{3}(378) = \boxed{126\pi}$

16. current mean $= \frac{62+40+47+28+43}{5}$

$= \frac{220}{5} = 44$

new mean $= \frac{220+100+100}{7} = \frac{420}{7} = 60$

$60-44 = \boxed{16}$

17. $S = \frac{a(1-r^n)}{1-r} = \frac{1(1-3^8)}{1-3}$

$= \frac{3^8-1}{2} = \frac{81^2-1}{2} = \frac{80\cdot 82}{2}$

$= 80\cdot 41 = \boxed{3280}$