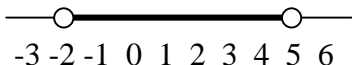


The following answers are for the sample Algebra Placement Exam.

ANSWERS (Algebra)

1. a)  $\frac{7}{2}$   
 b)  $8n+2$   
 c)  $x^2y$   
 d)  $y$   
 e)  $-2$   
 f)  $\frac{y^{1/6}}{2^{1/2}x^{1/6}}$  or  $\frac{2^{1/2}x^{5/6}y^{1/6}}{2x}$  or  $2^{-1/2}x^{-1/6}y^{1/6}$   
 g)  $1+b$   
 h)  $-2x$   
 i)  $\frac{9}{1+9x^2}$
2. a)  $21x^5y^6$   
 b)  $10a^3-12a^2$   
 c)  $x^2-2x$   
 d)  $x^3+6x^2+11x+6$   
 e)  $3x^5-x^4-2x^3+6x^2+2$
3. a)  $(3x+2)(2x+3)$   
 b)  $b(2a-b)$   
 c)  $(a+c)(a+b)$
4. a)  $2(5x+7)(x-1)$   
 b)  $x(2x+1)(x+1)$   
 c)  $x(x+2)(x+3)^2$   
 d)  $(x+2)(x^2-2x+4)$
5. a)  $x=\frac{11}{3}$   
 b)  $x=-\frac{1}{2}$   
 c)  $x=6$  or  $x=-2$
6.  $x=-2, y=3$
7. 20% by Factory A currently,  $33\frac{1}{3}\%$  if production doubled.
8. \$0.31
9.  $\frac{y-3}{x+2}=-\frac{5}{3}$  or  $y-3=-\frac{5}{3}(x+2)$  or  $y=-\frac{5}{3}x-\frac{1}{3}$  or  $5x+3y+1=0$
10.  $-2 < x < 5$   

11. a)  $\frac{-4x^2+7x-2}{2(2x+1)}$   
 b)  $1+2x-3x^2+5x^3+x^4$   
 c)  $x-y$   
 d)  $125\frac{d^6}{c^9}$   
 e)  $\frac{2ab}{a+b}$   
 f)  $x$   
 g)  $\frac{4\sqrt{2}}{3}$

h)  $\frac{1}{2x^{1/2}}$

i)  $2\sqrt[3]{\frac{xy}{3}}$  or  $\frac{2}{3}\sqrt[3]{9xy}$

12. a)  $\frac{2}{(x+1)(x+2)(x+3)}$

b)  $b+2+b^{-1}$  or  $b+2+\frac{1}{b}$  or  $\frac{b^2+2b+1}{b}$   
or  $\frac{(b+1)^2}{b}$

c)  $\frac{x^3+2}{x^2+3x+2}$  or  $x-3+\frac{7x+8}{x^2+3x+2}$

13. a) No solution

b)  $x = -\frac{1}{2}$

c)  $-2 \leq x \leq 3$

d)  $x = 7$

e)  $x = 1$ ,  $x = -\frac{1}{2}$ , or  $x = -3$

f)  $x = -1 \pm \sqrt[4]{2}$  or  $x = -1 \pm \sqrt[4]{2}i$

g)  $x = \pm \sqrt{\frac{y+1}{y-1}}$

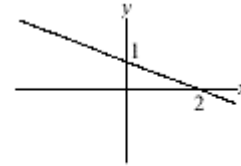
h)  $x = \frac{-3 \pm \sqrt{9+4y}}{2}$

14. a)  $x = -\frac{1}{3}$ ,  $y = \frac{1}{6}$

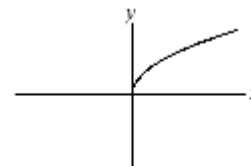
b)  $x = 4$ ,  $y = 3$  or  $x = 9$ ,  $y = \frac{4}{3}$

15.  $a = \frac{1}{2}$ ,  $b = \frac{1}{2}$  and  $c = 1$

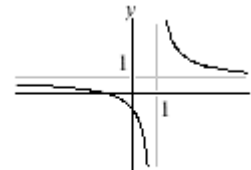
16. a)  $y = -\frac{1}{2}x + 1$



b)  $y = \sqrt{x}$



c)  $y = \frac{x+1}{x-1}$



17.  $(2, -1)$

18. 2.8 feet by 9.6 feet