Algebra Test 1 Review Solutions

1. a) $-(+6) = \boxed{-6}$

b) $-(-10) = \boxed{10}$

c) $10-7 = \boxed{3}$

d) $7-10 = \boxed{-3}$

e) $10+(-4) = \boxed{6}$

f) $-10+(-4) = \boxed{-14}$

g) $-10+4 = \boxed{-6}$

h) $8 \times 3 - 2$
$= 24 - 2$
$= \boxed{22}$

i) $-2+8\times3$
$= -2+24$
$= \boxed{22}$

j) $(-2+8)\times3$
$= (6)\times3$
$= \boxed{18}$

k) $4^2 = \boxed{16}$

l) $-4^2 = \boxed{-16}$

m) $(-4)^2 = (-4)\cdot(-4)$
$= \boxed{16}$

n) $5-2^2$
$= 5-4$
$= \boxed{1}$

o) $(5-2)^2$
$= (3)^2$
$= \boxed{9}$

p) $2-3\cdot4+2^3$
$= 2-3\cdot4+8$
$= 2-12+8$
$= -10+8$
$= \boxed{-2}$

q) $8-4\div2$
$= 8-2$
$= \boxed{6}$

r) $12-8/4$
$= 12-2$
$= \boxed{10}$

s) $1-(-2)\cdot3+4$
$= 1-(-6)+4$
$= 1+6+4$
$= \boxed{11}$

2. $x=2, y=-3, z=4$
$w=-12, v=12$

a) $xy-z$
$= 2\cdot(-3)-4$
$= -6-4$
$= \boxed{-10}$

b) $x-y\cdot z$
$= 2-(-3)\cdot4$
$= 2-(-12)$
$= \boxed{14}$

c) $xyz+v\div x$
$= (2)(-3)(4)+12\div2$
$= (-6)(4)+6$
$= -24+6 = \boxed{-18}$

d) $w\div z-x$
$= -12\div4-2$
$= -3-2$
$= \boxed{-5}$

e) $w\div(z-x)$
$= -12\div(4-2)$
$= -12\div2$
$= \boxed{-6}$

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3. What is the commutative property of addition?

$a+b=b+a$

4. What is the commutative property of multiplication?

$ab=ba$

5. (a) $0.2<0.4$ (b) $0.415<0.5$ (c) $-0.8<0.2$

(d) $1.915<2$ (e) $1.01000=1.01$ (f) $-1.1<-1.09$

(g) $5>2$

6. (a) $2.1+1.8=3.9$ (b) $3.7-1.5=2.2$ (c) $6.7+3.8=10.5$ (d) $1.28+3.09=4.37$ (e) $1.6-0.2=1.4$ (f) $8.2-1.9=6.3$

(g) $9.1-2.8=6.3$

$2.8-9.1=-8.3$

(h) $31.25-2.80=28.45$

(i) $31.00-2.81=28.19$

$2.81-31=28.81$

(j) $3.12+2.14=5.26$

$5.26-1.11=4.15$

(k) $3.5\times 3=10.5$ (l) $4.5\times 5=22.5$ (m) $2.5\times 2.5=6.25$ (n) $4.12\times 3=12.36$ (o) $5.56\times 7=38.92$

(p) $2.5\times 0.3=0.75$

(q) $0.25\times 0.62=0.1350$

(r) $11.512\times .04=0.46048$

(s) $4\overline{)3.2}=.8$ (t) $3\overline{)5.4}=1.8$

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6. (u) $5\overline{)12.5}$ → 2.5

-10

25

-25

0

(v) $0.4\overline{)2.56}$ → 6.4

$4\overline{)25.6}$

-24

16

-16

0

(w) $1.2\overline{)288.0}$ → 240

$12\overline{)2880}$

-24

48

-48

0

0

0

7, $x = 1.5$ $y = 5.2$ $z = -3$, $w = -10.12$ $v = 4$

(a) $x + y$

$1.5 + 5.2 = \boxed{6.7}$

(b) $x - y$

$5.2 - 1.5$

-1.5

3.7

$1.5 - 5.2 = \boxed{-3.7}$

(c) xy

1.5×5.2

30

650

$\boxed{6.80}$

(d) $x \div v$ $1.5 \div 4$

$4\overline{)1.500}$ → .375

-12

30

-28

20

-20

0

(e) $\boxed{6.80}$

(f) $xy - z$

(Problem (e) says $xy = 6.8$)

$6.8 - (-3) = \boxed{9.8}$

(g) $w \div v + x = 2.53 + 1.5$

$4\overline{)10.12}$ → 2.53

-8

21

-20

12

-12

0

$2.53 + 1.50 = \boxed{4.03}$

8. a) $1200 = \boxed{1.2 \times 10^3}$ (b) $300 = \boxed{3 \times 10^2}$ (c) $-314 = \boxed{-3.14 \times 10^2}$

d) $\boxed{1.2 \times 10^6}$ (e) $\boxed{5.143 \times 10^4}$ (f) $\boxed{5.14543 \times 10^2}$ (g) $\boxed{2 \times 10^{-1}}$

h) $\boxed{1.23 \times 10^{-1}}$ i) $\boxed{5.1234 \times 10^{-6}}$ (j) $\boxed{-5.15 \times 10^{-6}}$

9. a) 500 b) 310 c) 53000 d) 13,521 e) .05

f) -500 g) -.05 h) .000051643 i) .003141592

10. a) $\frac{7}{11}$ b) $\frac{7}{7} = 1$ c) $\frac{5}{13}$ d) $\frac{2}{3}$ e) $\frac{5}{5}\cdot\frac{1}{3} + \frac{1}{5}\cdot\frac{3}{3}$

$= \frac{5}{15} + \frac{3}{15} = \frac{8}{15}$

f) $\frac{7}{7}\cdot\frac{1}{3} - \frac{2}{7}\cdot\frac{3}{3}$

$= \frac{7}{21} - \frac{6}{21}$

$= \frac{1}{21}$

g) $\frac{2}{2}\cdot\frac{2}{6} + \frac{3}{12}$

$= \frac{4}{12} + \frac{3}{12}$

$= \frac{7}{12}$

h) $\frac{9}{9}\cdot\frac{9}{6} - \frac{8}{9}\cdot\frac{6}{6}$

$= \frac{81}{54} - \frac{48}{54}$

$= \frac{33}{54}$ or $\frac{3\cdot 11}{3\cdot 18}$

11. (a) $\frac{2}{5} < \frac{1}{5}$ (b) $-\frac{2}{5} < \frac{1}{5}$ (c) $\frac{7}{7}\cdot\frac{2}{5}$ $\frac{3}{7}\cdot\frac{5}{5}$ $\frac{14}{35} < \frac{15}{35}$ d) $\frac{12}{12}\cdot\frac{7}{9}$ $\frac{9}{12}\cdot\frac{9}{9}$ $\frac{84}{108} > \frac{81}{108}$

12. (a) $\frac{4}{8} = \frac{1}{2}$ (b) $\frac{2}{6} = \frac{1}{3}$ (c) $\frac{8}{24} = \frac{8\cdot 1}{8\cdot 3} = \frac{1}{3}$ (d) $\frac{9}{45} = \frac{9\cdot 1}{9\cdot 5} = \frac{1}{5}$

(e) $\frac{8}{20} = \frac{4\cdot 2}{4\cdot 5} = \frac{2}{5}$ (f) $\frac{20x^2}{5x^3} = \frac{2x^2}{x^3} = \frac{2}{x}$

(g) $\frac{10xy^3}{20x^2} = \frac{xy^3}{2x^2} = \frac{y^3}{2x}$ (h) $\frac{10a^3b}{16ab^3} = \frac{2\cdot 5a^3}{2\cdot 8b^3} = \frac{5a^3}{8b^3}$

13 (a) $4\overline{)1.00}$ → .25

(b) $3\overline{)1.0000}$ → .3333 → .333

(c) $9\overline{)1.000}$ → .111 → .111

(d) $7\overline{)2.0000}$ → .2857 → Round to .286

(e) $6\overline{)4.000}$ → .666 → Round to .667

(f) $7\overline{)13.000}$ → 1.8571 → Round to 1.857

14. (a) $0.5 = \frac{5}{10} = \boxed{\frac{1}{2}}$ (b) $.21 = \boxed{\frac{21}{100}}$ (c) $0.\overline{3} = \boxed{\frac{1}{3}}$ d) $.00315 = \boxed{\frac{315}{100000}}$

15. a) $\frac{2}{5} \cdot \frac{3}{7} = \boxed{\frac{6}{35}}$ (b) $\frac{3}{5} \cdot \frac{6}{7} = \boxed{\frac{18}{35}}$ (c) $\frac{2}{9} \cdot \frac{5}{84} = \boxed{\frac{5}{36}}$

(d) $\frac{2}{9} \cdot \frac{28}{7} = \boxed{\frac{4}{7}}$ (e) $\frac{12}{14} \times \frac{16}{27} = \boxed{\frac{4}{9}}$ (f) $\frac{4}{5} \div \frac{1}{3} = \frac{4}{5} \cdot \frac{3}{1} = \boxed{\frac{12}{5}}$

(g) $\frac{8}{9} \div \frac{2}{3} = \frac{8}{9} \cdot \frac{3}{2} = \boxed{\frac{4}{3}}$ (h) $\frac{12}{15} \div \frac{3}{5} = \frac{4}{4} \cdot \frac{5}{3} = \boxed{\frac{4}{3}}$

i) $\frac{2}{3} \times \frac{0}{1} = \frac{2}{3} \times 0 = \boxed{0}$ (j) $\frac{2}{3} \div \frac{0}{1} = \frac{2}{3} \div 0$ undefined