

Algebra II
pg 17 2-32 even

2)	x
4)	1
6)	$\frac{1}{2}z+1$
8)	ab
10)	p
12)	False
14)	True
16)	False

	Addition	Multiplication
26)	Not closed	Closed
28)	Not closed	Closed
30)	Not closed	Closed
32)	Not closed	Not closed

8) $(\frac{2}{3}a)(\frac{2}{3}b)$
ab

16) $5(xy) = (5x)(5y)$
 $5xy = 25xy$
False

32) irrational numbers $\{\pi, \sqrt{2}, \dots\}$

addition Multiplication
 $\pi + (-\pi)$ $\sqrt{2} \cdot \sqrt{2} = \sqrt{4} = 2$
 $0 \rightarrow$ Not closed

28) $\{1, 3, 5, \dots\}$

addition
 $1+3=4$
Not closed

multiplication
 $3 \cdot 5 = 15$
 $7 \cdot 19 = 133$
add. add = add
closed

30) $\{\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \dots\}$

addition
 $\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$
 $\frac{1}{3} + \frac{2}{6} = \frac{5}{6}$
Not closed

multiply
 $\frac{1}{2} \cdot \frac{1}{3} = \frac{1}{6}$
closed

18) $(2+a) + (-2)$
 $= (a+2) + (-2)$
 $= a + [(2) + (-2)]$
 $= a + 0$
 $= a$

Given
Commutative +
associative +
inverse +
identity +

19) $\frac{1}{5}[(n+5) + (-n)]$
 $\frac{1}{5}[(5+n) + (-n)]$
 $\frac{1}{5}[5 + (n+(-n))]$
 $\frac{1}{5}[5 + 0]$
 $\frac{1}{5} \cdot 5$
 1

Given
Commutative +
associative +
inverse +
identity +
inverse x

□

20) $3 + 4(x+1)$
 $= 3 + (4x + 4 \cdot 1)$
 $= 3 + (4x + 4)$
 $= (4x + 4) + 3$
 $= 4x + (4 + 3)$
 $= 4x + 7$

Given
distributive
identity x
commutative
associative +
substitution

21) $k + (k+2)$
 $(k+k) + 2$
 $(1 \cdot k + 1 \cdot k) + 2$
 $(1+1)k + 2$
 $2 \cdot k + 2$
 $2 \cdot k + 2 \cdot 1$
 $2(k+1)$

Given
Associative +
identity x
distributive
substitution
identity x
distributive

(backwards)

22) $x(y+1) + (-1)x$
 $= x(y+1) + x(-1)$
 $= x[(y+1) + (-1)]$
 $= x[y + (1 + (-1))]$
 $= x[y + 0]$
 $= xy$

Given
commutative x
distributive
associative +
inverse +
identity +

(backwards)

24) $\frac{1}{2}x + (-3) = 0$

$[\frac{1}{2}x + (-3)] + 3 = 0 + 3$

$\frac{1}{2}x + [(-3) + 3] = 0 + 3$

$\frac{1}{2}x + 0 = 0 + 3$

$\frac{1}{2}x = 3$

$2(\frac{1}{2}x) = 2(3)$

$2(\frac{1}{2}x) = 6$

$(2 \cdot \frac{1}{2})x = 6$

$1 \cdot x = 6$

$x = 6$

Given
addition prop =
associative +
inverse +
identity +
multiplication prop =
substitution
associative x
inverse x
identity x