Summer PA Review Key

ch. 1

① a) 2 b) 19

② 4

③ a) Commutative (+)
b) Mult. Prop. of Zero
c) Associative (·)
d) Identity (·)
e) Identity (+)
f) Commutative (·)
g) Associative (+)

④ $D = \{-8, 0, 3, 5, 9\}$
$R = \{2, 5, 6, 8\}$

⑤ a) positive
b) positive
c) negative
d) none

⑥ a) $n - 7$
b) $8n$
c) $n + 12$
d) $\frac{n}{2} + 5$

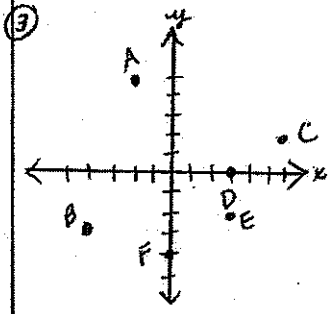
⑦ a) $y + 20$
b) $28m$

ch. 2

① a) <
b) >
c) =

② a) −7
b) −6
c) 3
d) −22
e) −9
f) −47
g) 60
h) 12
i) 56
j) −48
k) 200
l) −70
m) −20
n) 8
o) −8
p) 27

③



A(−2, 5) Quadrant II
B(−4, −3) Quadrant III
C(6, 2) Quadrant I
D(3, 0) x-axis
E(3, −2) Quadrant IV
F(0, −4) y-axis

④ a) 35
b) 72
c) 9

ch. 3

① a) Real, rational integer
b) Real, rational
c) Real, irrational
d) Real, rational, integer, whole, natural

② a) 0.68
b) $3.\overline{3}$
c) 2.3125

③ a) $9\frac{31}{50}$
b) $4\frac{5}{9}$
c) $-\frac{7}{500}$

④ a) $-\frac{2}{3}$
b) $17\frac{1}{4}$
c) $\frac{3}{16}$
d) $3\frac{1}{2}$

⑤ a) $\frac{5}{6}$
b) $-\frac{10}{11}$
c) $2\frac{7}{8}$
d) 9

⑥ a) 1
b) $-1\frac{7}{15}$
c) $-3\frac{23}{36}$
d) $-\frac{7}{12}$
e) $1\frac{1}{3}$
f) $\frac{1}{15}$

⑦ a) $\frac{8}{3}$ OR $2\frac{2}{3}$
b) $\frac{1}{7}$
c) $-\frac{3}{7}$

ch. 4

① a) 9
b) $9x+45$
c) $3d-10$
d) $7x+7$

② $4x, 3, -2x, y$
$4x, -2x$
$4, -2, 1$
3

③ a) $n=37$
b) $y=32$
c) $x=-1$
d) $n=9$
e) $m=10$
f) $p=12$

④ a) n = unknown #
$16+2n=24$
$n=4$

b) n = # of hours George used trainer
$40+15n=145$
$n=7$
7 hours

ch. 5

① a) $P = 40$ cm
$A = 84\ cm^2$

b) $P = 50$ feet
$A = 72\ ft^2$

② a) $n \leq 30$
b) $p \geq 20$
c) $n > 13$

③ a) $x = -11$
b) No solution $\varnothing$

④ a) $n > 21$
b) $p \geq -7$
c) $x < -6$
d) $n \geq -63$

ch. 6

① a) $\frac{3}{5}$ b) $\frac{5}{1}$

② a) \$14.25/toy
b) \$0.13/oz.

③ a) 27 ft
b) 10 qt
c) $\frac{440\ ft}{1\ min}$

④ a) $x = 4$
b) $n = 255$

⑤ $\frac{1}{3.5} = \frac{4}{l}$ $\quad \frac{1}{3.5} = \frac{5}{w}$
$l = 14$ ft $\quad w = 17.5$ ft
14 ft by 17.5 ft

⑥ $\frac{1}{72}$

⑦ a) $\frac{x}{16} = \frac{12}{18}$
$x = 10\frac{2}{3}$ ft
b) $\frac{5}{10} = \frac{9}{x}$
$x = 18$ in.

⑧ $x = 40$ ft

ch. 7, 8, 9 - Key

ch. 7

1) a) 14%, $\frac{7}{50}$

b) 0.36, $\frac{9}{25}$

c) $0.\overline{2}$; $22.\overline{2}\%$

2) a) 76.8

b) 12.5%

3) -37.5%

4) \$3,200

5) \$1,986 = interest
\$7,986 = final value

ch. 8

1) a) Yes

b) Yes

c) No

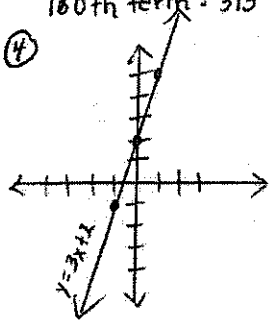
d) Yes

2) a) 5

b) 8

3) $d = 3$
$y = 3x + 15$
160th term: 315

4)



5) $m = 2$

6) $m = \frac{4}{1} = 4$

ch. 8, cont.

7) a) $m = \frac{1}{2}$
$b = 4$

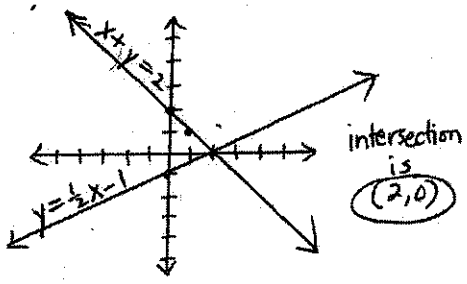
b) $m = -2$
$b = 6$

8) $y = \frac{2}{9}x - 4$

9) $y = \frac{1}{2}x + 1$

10) $y = -2x + 2$

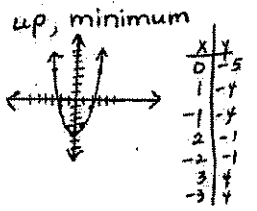
11)



ch. 9

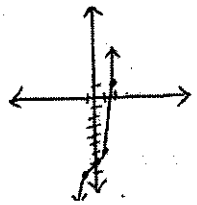
1) a) linear b) nonlinear c) nonlinear

2)



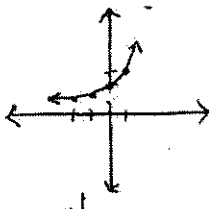
x	y
0	-5
1	-4
-1	-4
2	-1
-2	-1
3	4
-3	4

3)



x	y
0	-7
1	-6
-1	-8
2	1
-2	-15

4)



x	y
0	2
1	3
-1	1½
2	5
-2	1¼

5) $-1 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 5 \cdot a \cdot a \cdot a \cdot b \cdot b$

6) $8mn$

7) a) n^{18} b) 5^{13}

8) a) x^{30} b) y^6 c) $4ab^7$

9) a) $\frac{d^3}{c^6}$ b) x^4

10) a) x^{28} b) $9a^8b^{10}$

11) a) 6.45×10^{10} b) 7.9×10^{-5}

Ch. 10 Key

① a) $d=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

b) $a^2+b^2=c^2$

c) $m\angle A+m\angle B+m\angle C=180°$

② a) 11 b) 6 c) −15 d) ±8

③ $x=33°$

④ $1x+3x+5x=180$

$9x=180$

$x=20$

$20°, 60°, 100°$

⑤ a) $x=2\sqrt{3}$ cm b) $x=9$

$y=4$ cm $y=9\sqrt{2}$

⑥ a) $d=\sqrt{(2-3)^2+(9-6)^2}$

$d=\sqrt{(-1)^2+(3)^2}$

$d=\sqrt{10}$

$d\approx 3$

b) $d=\sqrt{(0-5)^2+(-4-1)^2}$

$d=\sqrt{(-5)^2+(-5)^2}$

$d=\sqrt{50}$

$d\approx 7$

⑦ a) $3^2+4^2=c^2$

$9+16=c^2$

$25=c^2$

$5=c$

cm

b) $4^2+b^2=12^2$

$16+b^2=144$

$-16 \quad -16$

$b^2=128$

$b\approx 11$

Ch. 11 Key

① a) $x=68°$ b) $x=42°$

c) $x=149°$ d) $m\angle 2=120°$

$m\angle 3=120°$

$m\angle 4=60°$

$m\angle 5=60°$

$m\angle 6=120°$

$m\angle 7=120°$

$m\angle 8=60°$

② Answers will vary for (a) through (d)

a) $\angle 1, \angle 4$

b) $\angle 3, \angle 6$

c) $\angle 1, \angle 8$

d) $\angle 1, \angle 5$

③ a) $(n-2)180$

$(6-2)180$

$(4)180$

Sum $=720°$

Each $=\frac{720°}{6}$

$=120°$

b) $(10-2)180$

$(8)180$

Sum $=1440°$

Each $=\frac{1440°}{10}$

$=144°$

④ a) $A=bh$

$=(20)(10)$

$=200$ in.^{2}

b) $A=\frac{1}{2}bh$

$=\frac{1}{2}(32)(16)$

$=\frac{1}{2}(512)$

$=256$ cm^2

c) $A=\frac{1}{2}h(b_1+b_2)$

$=\frac{1}{2}(11)(22+14)$

$=198$ mm^2

d) $A=\pi r^2$

$\approx(3.14)(8)^2$

≈ 200.96 in.

⑤ $C=\pi d$

$C\approx(3.14)(12)=37.68$ cm

Chapter 12 Key

① Rectangular Prism

Bases: $\square FGHE$, $\square ADCB$

Faces: $\square FGHE$, $\square ADCB$, $\square CDGH$, $\square BAFE$, $\square ADGF$, $\square BCHE$

Edges: $\overline{AB}$, $\overline{AD}$, $\overline{DC}$, $\overline{BC}$, $\overline{FG}$, $\overline{GH}$, $\overline{EH}$, $\overline{EF}$, $\overline{CH}$, $\overline{BE}$, $\overline{AF}$, $\overline{DG}$

Vertices: A, B, C, D, E, H, G, F

② a) $B = \frac{1}{2}bh_{\Delta}$

$= \frac{1}{2}(10)(9)$

$= 45 \text{ in.}^2$

$V = Bh$

$= (45)(14)$

$= 630 \text{ in.}^3$

b) $B = \ell w$

$= (40)(15)$

$= 600 \text{ m}^2$

$V = Bh$

$= (600)(14)$

$= 8400 \text{ m}^3$

③ $LA =$ Front + Back + Left + Right

$= 300 + 300 + 150 + 150$

$= 900 \text{ cm}^2$

$SA =$ Front + Back + Left + Right + Top + Bottom

$= 300 + 300 + 150 + 150 + 50 + 50$

$= 1{,}000 \text{ cm}^2$

ch. 13 Key

① {75, 80, 82, 83, 85, 88, 90, 94, 94, 100}

a) mode 94

b) median 86.5

c) mean 87.1

d) ~~LQ = 82~~

e) ~~UQ = 94~~

f) range = 25

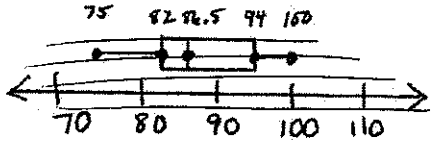
g) ~~IQR = 12~~.

h) ~~75, 82, 86.5, 94~~, 100

②

7	5
8	0 2 3 5 8
9	0 4 4
10	0

(Key 7|5 = 75)



③ a) $\frac{1}{6}$ b) $\frac{1}{2}$

c) $\frac{1}{3}$ d) $\frac{5}{6}$

e) 1:2 f) 5:1

④ a) $2 \cdot 2 \cdot 2 = 8$

b) $2 \cdot 2 \cdot 3 = 12$

c) $4 \cdot 3 = 12$

d) $3 \cdot 3 \cdot 3 \cdot 3 = 81$

⑤ a) $P(10,3) = 10 \cdot 9 \cdot 8 = 720$

b) $C(7,4) = \frac{7 \cdot 6 \cdot 5 \cdot 4}{4 \cdot 3 \cdot 2 \cdot 1} = 35$

c) $P(20,3) = 20 \cdot 19 \cdot 18 = 6,840$

d) $C(30,4) = \frac{30 \cdot 29 \cdot 28 \cdot 27}{4 \cdot 3 \cdot 2 \cdot 1} = 27,405$

ch. 14 Key

① a) $8x^2 + 2x + 5$

b) $4y^2 + 4$

② a) $8m^2 + 8m - 8$

b) $2mn + 7n + 3$