**Answers for Self -Tests**

**Unit R**

1. 22 × 32
2. a) Ten million, twenty-four thousand, five hundred twenty-six  
   b) Forty-seven and two hundred sixty-eight thousandths
3. a) 6.439

b) 8.025

c) 2.7

1. a)

b)

1. 400
2. a) 0.45

b) 43.6%

c)

d) 20%

e)

f)

1. a) 192

b) 105

1. a)

b)

c)

d)

e)

f)

g)

h) 2

i) 12

j)

k)

**Unit 1**

1. 5
2. 9
3. a) 7

b) No mode.

1. a) 7

b) 8

1. a) 3

b) 1

c) 4

1. Let your instructor check your line graph.
2. Let your instructor check your circle graph.
3. a) 551

b) 311.64

c) 2839

d)

e) 248

1. a) 6,000,000

b) 570

c) 8,600

d) 48,000

1. a) 80,800

b) 9,600

c) 3,000,000

d) 20

**Unit 2**

1. a) Constant: -3 Coefficient: 2 Variable: *x*

b) Constant: 13 Coefficient: -4 & Variable: *t*

1. a) 5*x*, 3 -*y*

b) 2*r*, 16*r*2, - *r*, 1

1. a) *x* and 5*x ,* 2*y2* and13*y*2 *,* 7 and -1

b) 0.6*t* and -7*t* **,** 9*uv* and 1.67*uv*

1. a)76

b) 58

1. a) 10*y*

b)

c) 15 – (*x* + = 6

d) 6*x* − 7 = 15

1. a) $375 + *y*

b) 175 – *y*

c)45 *– w*

d) *,*

1. a) *x*

b) 4

1. a) 9 ∙ 9 ∙ 9

b) (-*y*) (-*y*) (-*y*) (-*y*)

c) (0.5*a*3*b*) (0.5*a*3*b*)

d)

1. a) (0.06)4

b) (12*y*)3

c)

1. 1440
2. a) *y*8

b) 53

1. a) 8

b) 9

1. a) 133

b) 63

c) 8

**Unit 3**

1. 21 cm
2. 14.1 cm
3. a) 5.6 in

b) 11 ft

c) 35.2 cm

d) yd

1. 7.85 in
2. a) 33 cm

b) 26.85 cm

c) 17.85 in

d) 22.6 yd

1. 17.8 in
2. 18 m
3. a. 50 m

b. $750

1. 36 m
2. a) 17.25cm2

b) 16.57 in2

**c)** 23.85 m2

1. 47.47m2
2. 281.2 m2
3. a) 50.65 cm3
4. 45.144 mm3
5. 3591.1 cm3
6. 89.8 cm3
7. 217.68 cm3
8. 14815.8 m3
9. 301.6 m3
10. No
11. 7263.4 cm3
12. 98.8 cm2
13. 32.74 in2
14. LA 93.12 yd2 , SA135.59 yd2
15. LA 73.39 cm2, SA105.56 cm2
16. 10.18 m2
17. 1.72 m2
18. 273.3 m2

**Unit 4**

1. a) 0.439 m

b) 223.6 g

c) 0.0000483 kL

d) 25 hg

1. a) 7.23 kg

b) 520 mm

c) 0.34 L

d) 52000 cL

1. a) 4000 mm

b) 63006 g

c) 5290 mL

d) 28.87 km

1. a) 0.74 m2

b) 90,000 m2

c) 5,000,000 cm3

d) 0.567 cm3

1. a) 4

b) 38 g

c) 5000 cm3

d) 2.7 cL

e) 76

f) 18,000 cm3

g) 257 L

h) 0.039375 kL

1. a) 108 in

b) 94 pt

c) 7040 yd

d) 4.638 lb

1. a) 2.438 m

b) 7.6 kg

c) 93 tsp

d) 9 mi

e) 724.2 km

**Unit 5**

1. , 7.3 (Answers may vary.)
2. a) 8

b) -3, 0, 8

c) -3, 0, 8, 4.7 , ,

d) 5.4259…,

1. a) Identity property of addition

b) Commutative property of addition

c) Associative property of addition

d) Inverse property of addition

e) Distributive property

f) Associative property of multiplication

g) Commutative property of multiplication

h) Inverse property of multiplication

i) Distributive property

j) Multiplicative property of zero

k) Commutative propertyof addition

l) Associative property of multiplication

1. a) (12 + 88) + 45 = 145

b) (9 8) 1000 = 72,000

c) (3 + 2997) + 56 = 3056

1. a) 4*y*2 + 1.2*y*

b)10 – 15*y2*

c)

1. a) 6 < 8

b) 0 > -6

c) -4 < -2

d) <

e) -0.6 > -0.8

f) 1 >

1. a) - 17 < -9 < -4 < 0 < 8 < 23

b) -8 < -3.24 < 0.05 < <

c) < < <

1. a) 67

b) 21

c) 0.45

d) -49

e)

1. a) 116

b) 25

1. a) 37

b) -15

c)

d) 5

e) -13

f) 7.5

g) -13

h) 2

i)

j)

k) 5

l) -0.6

m) 27

n) -8

0) 0

p) Undefined

1. a) 45

b)

c) 1

1. a) 4

b) 40

c) -41

d) Undefined

**Unit 6**

1. a) 5*x*3 ,8*x*2 ,2*x*

b) – , 9*a*2 , *-*1

1. a) 2 , -7 , 9 Degree: 5

b) -8, – , 11, 4, -23 Degree: 6

1. a) Binomial

b) Monomial

c) Trinomial

1. a) 15*x*3 – 23*x*2 + 8*x*+ 3

b) *y*4 – 3*y*3 – 45*y*2

1. a) -*x* + 19*y*

b) 6*a*2 – 31*b*

c) 4*uv*2 + 10*u*2*v*

d) 23*t* – 9*r*

e) 9*m*2 + 64*n*

1. a) 10*a*2 + 13

b) -19*x*+ 39*y*

c) 7*z*2 – 16z + 31

d) -20*y*2 + 47y – 33

e) 17*ab* – 28*xy*

1. a) *a*9

b)

c)

d) -42*a*7 *b*11

e)

f)

g)

1. a) -12*x*7 + 28*x*4

b) 27*a*4*b*3 *+* 18*a*5*b*3 – 9*a*4*b*

c) 7*a* + 1

d) 40*y*2 *–* 11*y* *–* 63

e) 21*r*2 + 28*rt*2 *–* 6*rt –*8*t*3

f) 10*a*3 *b*3 *+* 21*a*2*b*2 *+* 9*ab*

g) *x*2 *–* +

**Unit 7**

1. a) Yes

b) No

c) Yes

1. a) *x* = 19

b)

c) *m* = 23

d) *t =* 8

e) =

f) *y* = -52

g) *x* = 28

h) = -

i) *x* = 7

j) *t* = -2

k) *y* = - 0.8

l) = 7

1. a) =

b) *m* = 9

c) *x* = 2

d) =

e) *x*  0.069

f) *t* = - 0.05

g) =

1. a) Contradiction equation

b) Identity equation

c) Conditional equation

d) Contradiction equation

e) Conditional equation

f) Identity equation

1. a) (*x* – 7) + 9

b)

c) 11*x* – 8

1. a) 4*xy* – 13 = *x* + *y +* 6

b) *x*2 + *y*2 = *xy* – 26

c) 5 + = 11*x*

d) (*x +* 1) *– x =* 1

e) *x +* (*x +* 2) *+ (x* + 4) = 15

f) *x* (*x* + 2) = 48

g) *x* + (*x* + 2) + (*x* + 4) = 21

1. a) 7*x* = 42 , *x* = 6

b) 4*x* – 3 = – 9 ,  *x* = -1.6

c) (5*x* – 3) + *x* + (4 + 5*x* – 3) = 20 , 2, 7, 11

d) *x* + (*x* + 2) + (*x* + 4) = 27 , 7, 9, 11

e) *x* + 7*x* + (30 + 7*x*) = 1800 , 100, 700, 1000

f) 128 = 2(*l* – 8) + 2*l ,*  36m, 28m

g) *x* = 199.99 + 20% *x* , *x* = $249.99

h) *x* = 379.99– (10%) (379.99) , *x* = $341.99

**Unit 8**

1. 121.43
2. 195 km
3. 2 h
4. 186.13
5. *A* =385 cm2 , *P* =92 cm
6. 696 ft2
7. *C* =15.08 ft , *A* =18.1 ft2
8. $337.50
9. 18
10. a) *r* =

b) *t* =

c) *l =*

d)  ***,*** 75.2

e) *m=*

f) *z =*

g) *b* =

h) *z = y – x t*

i) *h* =

j) *w* = , 0.091

1. 20.86 cm
2. 0.946 m
3. 14.91 ft
4. 283.65 km
5. 68.35 ft

**Unit 9**

1. a)

b)

c)

d)

e)

1. 0.14%
2. 1.25%
3. 76.5 km/h
4. 4 L
5. 8-lb.
6. a)

b)

1. $3.69
2. 16 ft
3. $18,000
4. 117
5. 300
6. 40%
7. 20.1%
8. a) 3 cm

b) 11.2 m

c) 5.25 cm

**Unit 10**

1. a) Acute angles

b) Obtuse angles

c) Obtuse angle

d) Reflex angle

1. 480
2. 340
3. 440
4. a) Supplementary

b) < *A* =1470  ,< B = 330

1. < C = 400
2. < C = 720, < *D* = 1080 , *b* = 5 cm
3. a) vi b) i c) iii d) ii
4. a) *<* = 600  ,*x* = 23 cmIt is an equilateral triangle (an acute triangle).

b) *<* = 1020 , *a* = 43 ft It is an isosceles triangle (an obtuse triangle).

c) *<* = < *C* = 280 , It is an isosceles triangle (an obtuse triangle).

d) *<* = 72 opposite 0 , *x* = 32 cm It is an isosceles triangle (an acute triangle).

1. a) opposite

b) adjacent

c) hypotenuse

d) adjacent

e) opposite

f) *Y*

1. sin *X* = 0.6402 , sin *Z* = 0.7682

cos *X* = 0.7682 , cos *Z* = 0.6402

tan *X* = 0.8333 , tan *Z* =

1. sin *O* = 0.5577 , sin *Q* = 0.8294

cos *O* = 0.8294 , cos *Q* = 0.5577

tan *O* = 0.6725 , tan *Q* = 1.4871

1. a) 0.8387
2. 0.8090
3. 19.0811
4. 12.50
5. 62.830
6. 51.020
7. *x*  7.793
8. *c* = 36.58 cm
9. < *A* = 510 ,*b* 4.86 m , *c* 7.72m
10. a) *b*  6.25 cm
11. *<A =* 410
12. a) < *B* = 450 , *b* = 6 m , *c* 8.458 m
13. *a* = 4 ft , < *A*  53.130, < *B* *=* 36.870
14. a) < *B*  320

b)  *y*  16.04 m

1. *x* 25.74 m
2. < 41.210
3. *x* 22.67 m
4. < 49.090
5. *x* 47.34 cm

**Unit 11**

1. a) 7 ∙ 7 ∙ 7 ∙ 7

b) (-*t*) (-*t*) (-*t*)

c) (5*a*4*b*0) (5*a*4*b*0)

d)

1. a) (0.5)4

b) (6*w*)3

c) 42 *u*2 *v*2

1. a) 24

b) 982

1. a) 5

b) 7

1. a)

b)

1. a)

b)

1. a) - 92

b) 1

c) - 0.064

d) - 64

e) *y*7

f)

g)

h)

i) - 0.512

j) 81*a*8 *b*12

k) 64

l)

m)

n) 1

o)

p)

q)

r)

1. a) 1

b)

c) 9

1. a) 4.56× 107
2. 5.23 × 10-6
3. a) 3578

b) 0.000043

1. a)

b)

1. a) 14

b)

c)

d)

**Unit 12**

1. 3, 17, 1
2. 2, 7, 14
3. 234.55 g , 625.45g
4. 6.3 L
5. 13 km/h
6. 0.2 h, 0.286 h
7. 5%
8. 22.5%
9. $61.11
10. $27,960
11. $29.85, $169.15
12. $23,450, $445,550
13. $20,000, $120,000
14. $ 2662.56
15. $ 41.05
16. $33170.73
17. $3500, $2000
18. 3, 9, 10, 30
19. 1.2 L

**Unit 13**

1. a) 12

b) 9

c) 8

1. a) -8*y*

b) *x*

c) -9*xy*2 + 4*x*2 – *y*3

1. 9*x*4 – *x*3 – 8*x* + 10
2. 4*x*2 + 7*x* – 18
3. a) 11*a*3 – 4*a*2 + 9*a* + 2

b) 5*x*2 – 4*x* + 11

1. a) 24 *x*7 *y*5

b)12*a*6 – 24*a*3

c) 14*x*2*y*6 *+* 7*x*4*y*3 – 21*xy*3

d) 12*x*2 – 31*x* + 20

e) - 2*a*4 + *a*3 + 13*a*2 – 15*a*

1. a)8*t7 –* 20*t*4

b)3*x*2 – 17*x* + 10

c) 36*a*2 –25

d) 9*w*2 – 6*w* + 1

e) 25*u*2 + 5*u* +

f) 36*x*2 *–* 4*xy* +2

g) *z*2 –

1. a)

b)

c) 4*y* + 1 –

d) 3 (2*a* + 1)

1. a) 3*x* + 2, Remainder = 2

b) 2*x*2 *–* 7*x* + 14 , Remainder = 2

**Unit 14**

1. 2 ∙ 2 ∙ 3 ∙ 5
2. a) 5*x*

b) 3*ab*

c) *y* + 4

d)

e)

1. a) (5*x*– 1) (5*x +* 4)

b) (6*b* – *a*) (8*ab* + 1)

c) 25*uv* – 6*vw*

d) (*x* + *y*) (*x* – *y*)2

e) 5 (*y +* 2) (*y –* 2)

f) (1*+* 7*w*) (1 *–* 7*w*)

g) (9*u +* 11) (9*u –* 11)

h) (5*a +* 6*b*) (5*a –* 6*b*)

**i**) (2*y*3 *+* 0.3) (2*y*3 *–* 0.3)

1. a) (*x* + 4) (*x* + 5)

b) (*x* –4) (*x* –6)

c) (*x* +3) (*x* –6)

d) 2(*x* – 2) (*x* + 7)

e) (*x* –3) (4*x +* 5)

f) (5*y* – 6) (*y* + 3)

g) (6*b* – *a*) (4*ab* + 1)

h) 17*uv* – 6*vs*

1. a) 3(2*x* + 5) (*x* – 4) = 0

b) 2(3*x* – 4) (*x* + 2)

1. a) (3*x +* 5)2

b) 3(2*y* –3)2

c) 2(3*t*4 – 2)2

1. a)0 ,

b)

c) *-* 9, 17

1. a) -6, 7

b) -*,*  5

c)  **,**

1. -9,
2. 4, -6
3. 7m, 9m
4. 6m , 8m

**Unit 15**

1. (2, -1): IV, (-4, 3): II, (-1, -3): III, (3, 2): I

∙ (3, 2)

∙ (-4, 3)

**

*y*

∙ (2, -1)

*x*

∙ (-1, -3)

∙ (0, 0)

*x*

**∙ (1, 3)**

|  |  |  |
| --- | --- | --- |
| ***x*** | ***y =* 3*x*** | **(*x*, *y*)** |
| 0 | 0 | (0, 0) |
| 1 | 3 | (1, 3) |

∙ (1, 4)

b)

*x*

*y*

(0, -3)∙

|  |  |  |
| --- | --- | --- |
| ***x*** | ***y =* 7*x* 3** | **(*x*, *y*)** |
| 0 | -3 | (0, -3) |
| 1 | 4 | (1, 4) |

c)

(0, 2)∙

*x*

∙ (3, 1)

*y*

|  |  |  |
| --- | --- | --- |
| ***x*** | ***y =x* + 2** | **(*x*, *y*)** |
| 0 | 2 | (0, 2) |
| 3 | 1 | (3, 1) |

*y*



∙ (3, -3)

(0, -4)∙

|  |  |  |
| --- | --- | --- |
| ***x*** | ***y = x*  4** | **(*x*, *y*)** |
| 0 | -4 | (0, -4) |
| 3 | -3 | (3, -3) |

*x*

Third point may vary.

1. a) *y* = -1

b) *y* = -5

c) *y* = -2

1. *m* = -6
2. *m* = 8

*y*

1. a) b)

*y*

*y*

*x* = 3

*y*  = 0

*x*

*x*

*x*

*y* = - 0.9

1. a) *m* = -7

*b* = -11 or (0, -11)

1. *m* =

*b* = or (0, )

1. *m* = -35

*b* = 10 or (0, 10)

∙ (0, 5)

*y*

1. a)

5

∙ (4, 2)

4

*x*

2

0

*y*

b)

*x*

∙ (1, -1)

∙ (0, -3)

1. (3, 0), (0, -9).

*y*

1. a)

*x*

**∙ (2, 0)**

|  |  |  |
| --- | --- | --- |
| ***x*** | ***y* = 4*x* 8** | **(*x*, *y*)** |
| 0 | -8 | (0, -8) |
| 2 | 0 | (2, 0) |

∙ (0, -8)

b)

*x*

∙ (6, 0)

*y*

**∙ (0, 3)**

|  |  |  |
| --- | --- | --- |
| ***x*** | ***y* = *x* 3** | **(*x*, *y*)** |
| 0 | 3 | (0, 3) |
| 6 | 0 | (6, 0) |

∙ (0, 6)

*y*

1. a)

*y* = 2*x* + 6

∙ (-3, 0)

*x*

∙ (0, 3)

*y*

b) *y* = *x* + 3

∙ (4, 0)

*x*

1. a) *y* = -4*x* – 3

b) *y* = *x* – 10

1. a) *y* = -9*x* + 29
2. *y* = 2*x* + 6
3. *y* = *x* + 5