

# NUMBER BASES

TEXT: 4.3

LAST NAME	FIRST NAME	DATE
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1 (8 points). Convert the given number into base 10:

(a)  $1001_2$

(e)  $12345_7$

(b)  $11001100_2$

(f)  $706050_8$

(c)  $23_{2023}$

(g)  $ACED_{16}$

(d)  $101.01_2$

(h)  $3.14_5$

2 (6 points). Convert the number 2025 into the specified base:

(a) base 2

(d) base 7

(b) base 3

(e) base 11

(c) base 5

(f) base 16

**3** (1 point). Convert the number from base 8 into base 2:

$44022665_8$

**4** (1 point). Convert the number from base 2 into base 4:

$101100111000101011_2$

**5** (1 point). Convert the number from base 3 into base 9:

$21020110221_3$

**6** (1 point). Convert the number from base 9 into base 3:

$2.71828_9$

7. Convert the given number into base 10:

(a)  $32_4$

(d)  $317_{17}$

(b)  $333_6$

(e)  $777_{13}$

(c)  $666_9$

(f)  $DEDEDE_{15}$

8. Convert the number to a given base.

(a) 0.5 to base 6

(d) 0.5 to base 7

(b)  $\frac{2}{3}$  to base 9

(e)  $7.\bar{3}$  to base 3

(c) 0.75 to base 16

(f) 375.375 to base 8

9. Convert the number from base 2 into base 16:

11000000111111111101110

10. Convert the number from base 16 into base 2:

$FACADE_{16}$

11. What other words/phrases can you spell using hexadecimal (base 16) digits?

12. Convert the number to base 10:

$MATH_{36}$

## PROBLEMS WITH ANSWERS.

Convert the number into a base 10 number.

1.  $14_5$

7.  $3B_{12}$

13.  $3223_6$

2.  $21_6$

8.  $241_6$

14.  $1436_7$

3.  $12_3$

9.  $101_2$

15.  $8A0BD_{15}$

4.  $34_5$

10.  $4A7_{14}$

16.  $110202_3$

5.  $14_8$

11.  $804_9$

17.  $100A4_{12}$

6.  $78_9$

12.  $101001_2$

18.  $1010000101_2$

Convert the base 10 number into the given base.

19. 12 into base 4

27. 2876 into base 4

20. 25 into base 2

28. 1765 into base 5

21. 43 into base 12

29. 1993 into base 7

22. 153 into base 5

30. 2000 into base 2

23. 203 into base 2

31. 4368 into base 12

24. 431 into base 4

32. 12562 into base 16

25. 543 into base 12

33. 44596 into base 36

26. 1023 into base 2

34. 15941 into base 36



## ANSWERS.

1. 9

3. 5

5. 12

7. 47

9. 5

11. 625

13. 735

15. 438928

17. 20860

19.  $30_4$

21.  $37_{12}$

23.  $11001011_2$

25.  $393_{12}$

27.  $230330_4$

29.  $5545_7$

31.  $2640_{12}$

33.  $YES_{36}$