

Answer key Sect 3.1

11. -12

12. 36

13. 6

14. 9

15. 1

16. 2

17. -5

18. 20

19. $ad-bc$, $cb-da$
switching 2 rows changes the sign

20. $ad-bc$, $a(kd)-b(kc) = k(ad-bc)$
multiplying by scalar k on 1 row
multiplies the determinant by k

21. -2, $(18+12k)-(20+12k) = -2$
a row replacement doesn't change
the determinant.

25. 1

26. 1

27. k

28. k

31. $\det = 1$

this matrix is upper or
lower triangular with only 1's
on the diagonal (see chapter)

32. $\det = k$

a scaling matrix is a diagonal
matrix with a k on the diagonal
& the rest of the diagonal entries are 1

35. $\det(EA) = \det \begin{bmatrix} a+kc & b+kd \\ c & d \end{bmatrix}$

$$\begin{aligned} &= (a+kc)d - (b+kd)c \\ &= ad + kcd - bc + kdc \\ &= (+1)(ad - bc) \\ &= \det E \cdot \det A \end{aligned}$$

36. $\det(EA) = \begin{vmatrix} a & b \\ kc & kd \end{vmatrix}$

$$\begin{aligned} &= akd - bkc \\ &= k(ad - bc) \\ &= \det E \cdot \det A \end{aligned}$$

37. $5A = \begin{bmatrix} 15 & 5 \\ 20 & 10 \end{bmatrix}$; no

38. $\det(kA) = k^2 \cdot \det A$
b/c A has 2 rows

39. a) T

40. a) F

b) F

b) F

41. area of parallelogram = 6 = $\det([u \ v])$
if $\vec{v} = \begin{bmatrix} x \\ 2 \end{bmatrix}$ for any x , the area is still 6