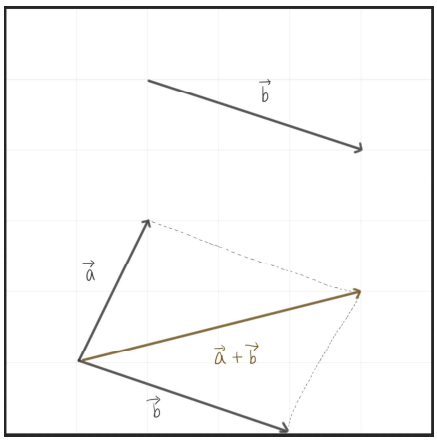
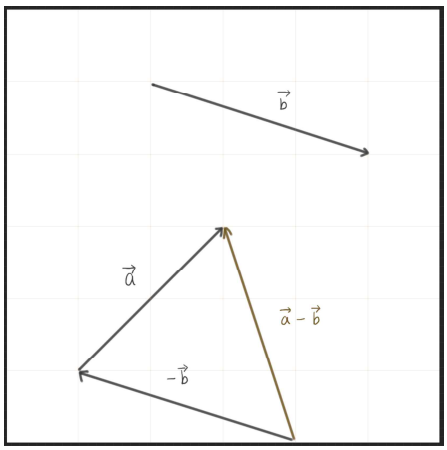
6.1절 확인문제

01.





02. (a) $2\vec{a}+8\vec{b}$ (b) $-3\vec{a}-5\vec{b}$

03. 13

6.2절 확인문제

01. $\mathrm{P}(3,0,5)$, $\mathrm{Q}(3,4,5)$

02. $\mathrm{R}(\frac{9}{2},0,0)$

03. (a) $(x-2)^2+(y-4)^2+(x-7)^2=4$

(b) $(x-2)^2+y^2+(z+1)^2=12$

6.3절 확인문제

01. $\overrightarrow{OP}=\dfrac{3\overrightarrow{OB}+2\overrightarrow{OA}}{5}$

02. $\vec{c}=7\vec{a}-3\vec{b}$

03. (a) $6\sqrt{2}$ (b) 0

04. $\dfrac{\pi}{4}$

05. (a) $\vec{a}\times\vec{b}=(0,0,-21)$ (b) $\vec{a}\times\vec{b}=(-36,-2,8)$

06. $\dfrac{\sqrt{131}}{2}$

6.4절 확인문제

01. 참

02. (a) $\dfrac{x-4}{2}=\dfrac{y-5}{4}=\dfrac{z+7}{-1}$ (b) $\dfrac{x-1}{2}=\dfrac{y-2}{5}=\dfrac{z-4}{-2}$

03. $\theta=\dfrac{\pi}{3}$

04. (a) $2x+3y+7z-26=0$ (b) $8x+2y+z-15=0$

05. $\theta=\dfrac{\pi}{4}$

6장 연습문제

01. (a) $\overrightarrow{AO}$ (b) $\overrightarrow{CD}$ (c) $\overrightarrow{CE}$ (d) $\overrightarrow{AE}$

02. $\overrightarrow{BC}=\overrightarrow{OC}-\overrightarrow{OB}$, $\overrightarrow{CA}=\overrightarrow{OA}-\overrightarrow{OC}$

03. $m=\frac{8}{3}$, $n=\frac{2}{3}$

04. 생략

05. $(x+1)^2+(y-2)^2+(z+4)^2=36$

06. (a) $\overrightarrow{OP}=\frac{m}{m+n}\overrightarrow{OB}+\frac{n}{m+n}\overrightarrow{OA}$ (b) $\overrightarrow{OG}=\frac{1}{3}\overrightarrow{OA}+\frac{1}{3}\overrightarrow{OB}+\frac{1}{3}\overrightarrow{OC}$

07. (a) $\vec{b}=(4,2)$, $(-4,-2)$ (b) $a=-7$, 1

08. (a) $mp|\vec{a}|^2+(mq+np)(\vec{a}\cdot\vec{b})+nq|\vec{b}|^2$ (b) $|\vec{a}|^2-|\vec{b}|^2$

09. $\theta=\frac{\pi}{3}$

10. (a) 생략 (b) 생략
(c)

```
import numpy as np

a = np.array([1,2,3])      # 임의의 벡터 선택하기!
b = np.array([4,7,-5])
c = np.array([3,9,1])

# (a)
print("(a+b)c=",np.dot(a+b,c))
print("ac+bc=",np.dot(a,c)+np.dot(b,c))

# (b)
k = 11 # 임의의 실수 k 선택하기!
print("(ka)b=",np.dot(k*a,b))
```

```
print("k(ab)=",k*np.dot(a,b))
print("a(kb)=",np.dot(a,k*b))
```

11. (a) 생략 (b)

```
import numpy as np

a = np.array([3,5,-5])      # 임의의 벡터 선택하기!
b = np.array([1,9,3])

# (a)
print("(aXb)b=",np.dot(np.cross(a,b),b))
```

12. 생략

13. (a) 생략 (b) $\frac{1}{3}\sqrt{314}$

```
import numpy as np

a = np.array([7,-2,5])      # 임의의 벡터 선택하기!
b = np.array([3,7,-2])

print("|aXb|^2=",(np.linalg.norm(np.cross(a,b)))**2)
print("|a|^2|b|^2-(ab)^2=",
        (np.linalg.norm(a)**2)*(np.linalg.norm(b)**2)-(np.dot(a,b))**2)
```

14. (a) $x-1=\frac{y-7}{-4}=\frac{z+4}{8}$ (b) $7x+5y-3z+1=0$

15. $k=-12$

16. $(-5,6,4)$

17. $\frac{\pi}{4}$

18. 2