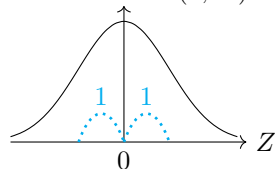
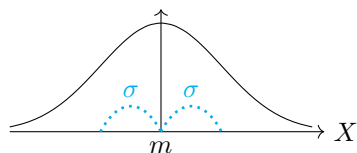


標準正規分布 $N(0, 1^2)$

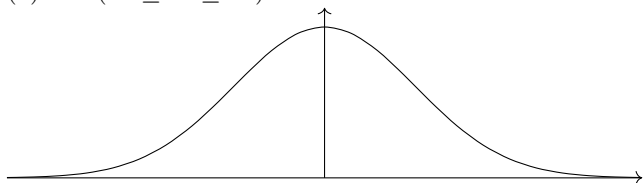


正規分布 $N(m, \sigma^2)$



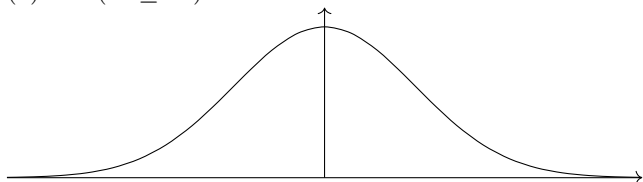
問 1 確率変数 X が正規分布 $N(20, 6^2)$ に従うとき、次の確率を求めよ。

(1) $P(20 \leq X \leq 29)$



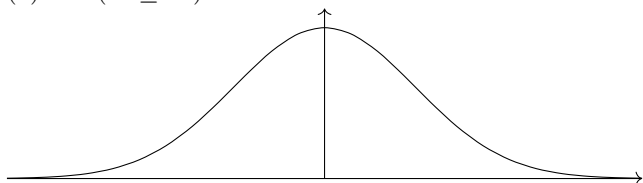
答

(2) $P(X \leq 23)$



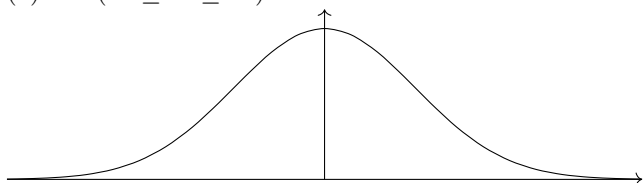
答

(3) $P(X \geq 26)$



答

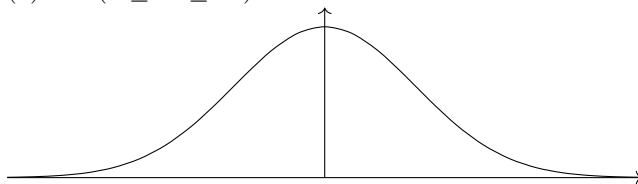
(4) $P(14 \leq X \leq 32)$



答

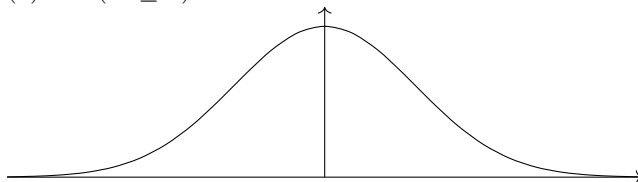
問 2 確率変数 X が正規分布 $N(30, 8^2)$ に従うとき、 k の値を求めよ。

(1) $P(k \leq X \leq 30) = 0.3944$



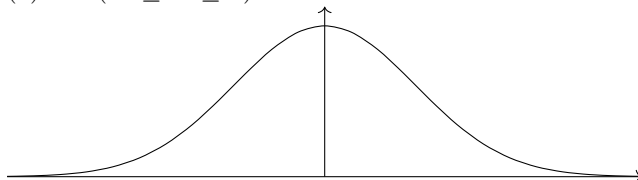
答 $k =$

(2) $P(X \leq k) = 0.2266$



答 $k =$

(3) $P(22 \leq X \leq k) = 0.8012$

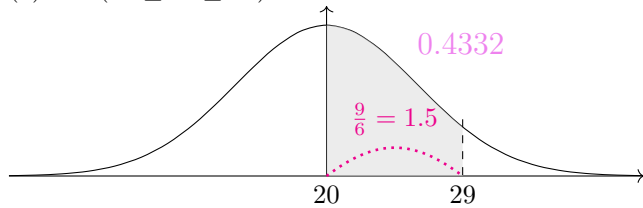


答 $k =$

*****+ 【解答】 *****+

問 1 確率変数 X が正規分布 $N(20, 6^2)$ に従うとき、次の確率を求めよ。

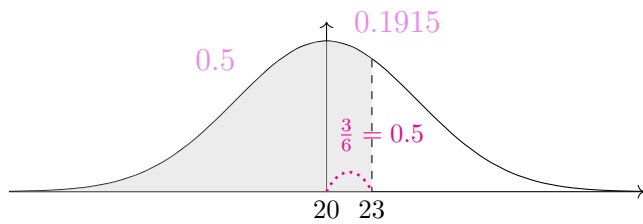
(1) $P(20 \leq X \leq 29)$



$$P(20 \leq X \leq 29) = P(0 \leq Z \leq 1.5) = 0.4332$$

答 0.4332

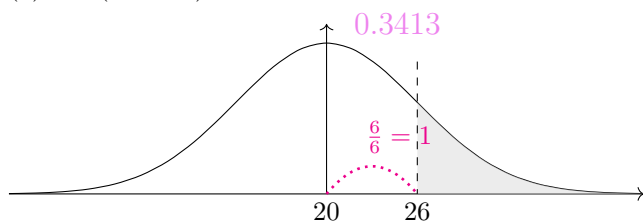
(2) $P(X \leq 23)$



$$P(X \leq 23) = P(Z \leq 0) + P(0 \leq Z \leq 0.5) = 0.5 + 0.1915 = 0.6915$$

答 0.6915

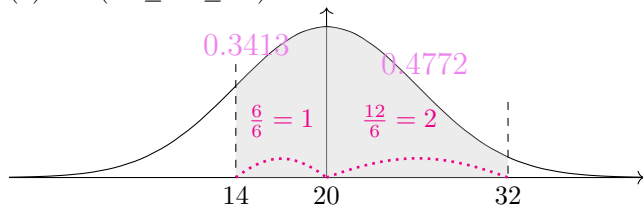
(3) $P(X \geq 26)$



$$P(X \geq 26) = P(0 \leq Z) - P(0 \leq Z \leq 1) = 0.5 - 0.2420 = 0.2580$$

答 0.2580

(4) $P(14 \leq X \leq 32)$

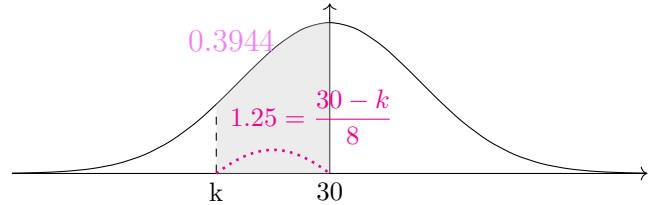


$$P(14 \leq X \leq 32) = P(-1 \leq Z \leq 0) + P(0 \leq Z \leq 2) = 0.2420 + 0.4772 = 0.7192$$

答 0.7192

問 2 確率変数 X が正規分布 $N(30, 8^2)$ に従うとき、 k の値を求めよ。

(1) $P(k \leq X \leq 30) = 0.3944$



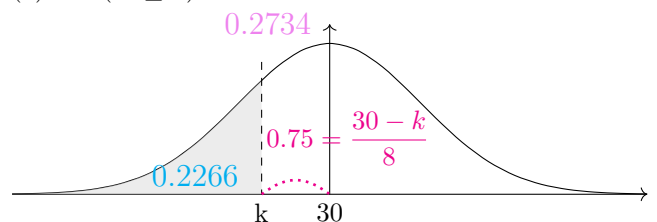
$$1.25 = \frac{30 - k}{8}$$

$$10 = 30 - k$$

$$k = 20$$

答 $k = 20$

(2) $P(X \leq k) = 0.2266$



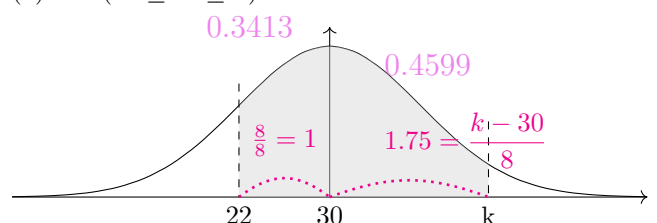
$$0.75 = \frac{30 - k}{8}$$

$$6 = 30 - k$$

$$k = 24$$

答 $k = 24$

(3) $P(22 \leq X \leq k) = 0.8012$



$$1.75 = \frac{k - 30}{8}$$

$$14 = k - 30$$

$$k = 44$$

答 $k = 44$